Embedded/IoT Solutions

Connecting the Intelligent World from Devices to the Cloud

Long Life Cycle · High-Efficiency · Compact Form Factor · High Performance · Global Services

Embedded Internet of Things

Supermicro Building Block Solutions for Embedded Applications, The Internet Of Things and The Intelligent Edge

January 2019
Supermicro X11 Generation MBD and Servers support Intel Xeon E-2100 (Coffee Lake) Series processors with enterprise-class reliability and performance, offering server-class motherboards and entry-level servers. Xeon E introduce the first 6-core/12-Thread processors with optimized 14 nm technology. These processors offer thermal design power (TDP) options of (35W - 95W) to fit specific designs configurations with performance and low-power requirements. The E series processors are ideally suited for a wide range of embedded/IoT, Networking and Storage Applications.

Server Solutions

**SYS-5019C-M** 1U • 17.2" depth
- Up to 128GB ECC UDIMM, up to DDR4-2666MHz, 4 DIMM slots
- 1 PCI-E 3.0 x16 slot
- 4 Hot-swap 3.5” drive bays
- M.2 Interface: 1 SATA/PCI-E 3.0 x4 and 1 PCI-E 3.0 x4,
  M.2 Form Factor: 2280/22110, M.2 Key: M-Key
- 2 GbE LAN ports, 1 dedicated IPMI LAN
- 2 USB 3.1 (rear), 2 USB 2.0 (rear)

**SYS-1019C-FHTN8** 1U • 17.2" depth
- Up to 128GB ECC UDIMM, DDR4-2666MHz, in 4 DIMM slots
- 8x 1GbE, 1 dedicated IPMI LAN
- 1 VGA, 2 USB3.1, 2 USB2.0
- 1 PCIe3.0 x16
- Dual M.2 M key (22110/2280)
- 2x 2.5” Hot Swap, 2x 2.5” Internal SATA3 Drive Bay

Motherboards Solutions

**X11SCM-F**
- 8 cores | 95W

**X11SCM-FHTN8**
- 8 cores | 95W

**X11SCM-F**
- 6 cores | 95W

**X11SCM-F**
- 6 cores | 95W

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**X11SCM-F**
- 6 cores | 95W
X11 Intel® Xeon® Processor D-2100

**High Core, High Performance (FCBGA 2518 SoC)**

Supermicro X11 Generation of Motherboards/Servers support Intel Xeon Processors D-2100 (Formerly Skylake-D) series *system-on-chip (SoC)* Processors.

Based on new Intel® Xeon® D-2100 processors with a range of 4 to 18 cores and up-to 512 GB of addressable memory with error-correcting code (ECC), this system-on-a-chip (SoC) has an integrated Platform Controller Hub (PCH), integrated high-speed I/O, up-to four integrated 10 Gigabit Intel® Ethernet ports, and a thermal design point (TDP) of 60 watts to 110 watts.

Enhanced Intel® QuickAssist Technology (Intel® QAT), available as an integrated option, delivers up to 100Gbps of hardware acceleration, for growing cryptography, encryption, and decryption workloads offering greater efficiency while delivering enhanced transport and protection across server, storage, and network infrastructure.

New Intel® Advanced Vector Extensions 512 (Intel® AVX-512) delivers workload-optimized performance and throughput increases for advanced analytics, compute-intensive applications, cryptography, and data compression.

Built-In Hardware Virtualization using Intel® Virtualization Technology (Intel® VT) to enable dynamic provisioning of services as communication service providers extend network functions virtualization (NFV) to the network edge.

### Server Solutions

**SYS-1019D-FRN5TP**
- Built in Intel QAT up to 40Gbps Crypto/Compression
- Support up to 37x 1GbE LAN ports for network connectivity, 4x 10GbE LAN (IPMI Shared LAN)
- 4 AIOM, PCIe3.0 x8 (AOC-AG-i8 (I350))
- 2x 2.5 Internal Drive Bays
- Redundant 400W AC/DC PSU
- M.2: 2x M-Key, B-Key, E-Key

**SYS-1019D-FHN13TP**
- Intel® Xeon® D-2146NT
- 8 cores | 80W
- Up to 256GB Registered ECC RDIMM, DDR4-2133MHz; Up to 512GB LRDIMM LRDIMM, in 4 DIMM slots
- Dual PCIe3.0 x16 FHFL
- 2x 10GbE, 2x SFP+, 9x GbE (one for management), 1x dedicated IPMI LAN, 1x COM via RJ45
- 1x M.2 M-Key 2280/110, 1x M.2 B-Key 3042, 1x M.2 E-Key

**SYS-5019D-FN8TP**
- Intel® Xeon® D-2146NT
- 8 cores | 80W
- Built in Intel QAT up to 40Gbps Crypto/Compression
- 1 Fixed 2.5” drive bay with bracket
- 1 M.2 slot M key for SSD, 2242/82, 1 M.2 B Key for SSD/ WAN card, 1 Mini-PCI-E with mSATA Support, 1 PCI-E 3.0 x8 slot
- Up to 512GB ECC LRDIMM, up to 256GB ECC/non-ECC RDIMM/DDR4-2666MHz; in 4 DIMM slots
- 4x 1GbE, 2x 10GBase-T, 2x 10G SFP+ and 1 dedicated LAN for IPMI 2.0
- 1 VGA, 2 USB 3.0

**SYS-E500-9D-8CN8TP**
- Intel® Xeon® D-2146NT
- 8 cores | 80W
- Built in Intel QAT up to 40Gbps Crypto/Compression
- Supports up to 8C high Density SKL-D SoC processor for edge network computing
- High Memory Bandwidth-Supports 4 DDR4 channel DIMMs (ECC LRDIMM or ECC RDIMM) with up to 2666 MHz memory speed. Max memory capacity up to 512GB on LRDIMM
- 8 LAN ports supported (2 x 10G SFP+, 2 x 10GBase-T, 4 x GbE)

### Motherboard Solutions

**X11SDV-4C-TLN2F**
- D-2123IT | 4 Core | 60W

**X11SDV-8C/8C+-TLN2F**
- D-2141T | 8 Core | 65W

**X11SDV-12C-TLN2F**
- D-2166NT | 12 Core | 85W

**X11SDV-16C/16C+-TLN2F**
- D-2183IT | 16 Core | 100W

**X11SDV-8C-TP8F**
- D-2146NT | 8 Core | 80W

**X11SDV-12C-TP8F**
- D-2166NT | 12 Core | 85W

**X11SDV-16C-TP8F**
- D-2183IT | 16 Core | 100W
X10 Intel® Xeon® Processor D-1500
High Core, High Performance, Low Power (FCBGA 1667 SoC)

Supermicro X10 Generation of Motherboards/Servers support Intel Xeon Processors D-1500 (Formerly Broadwell-DE) series system-on-chip (SoC) Processors.

Based on Intel’s third-generation 64-bit system on a chip (SOC) and 14 nm silicon technology, the Supermicro product lineup offers processor scalability from two up to sixteen cores, making it the perfect choice for a broad range of high-density, high-performing, midrange-power solutions (TDP ~25W to 65W) that brings superior design solutions to the intelligent edge.

The Intel® Xeon® processor D-1500 product family is offered with a seven-year extended supply life and 10-year reliability for Internet of Things designs.

Mini-ITX Server & Motherboard Solutions

SYS-5018D-FN4T* 1U • 9.8" depth
- Front I/O, Space-efficient, compact design
- Intel® Xeon® processor D-1541, Single socket FCBGA 1667; 8-Core, 45W
- 1 PCI-E 3.0 x 16, 1x M.2 PCI-E 3.0 x4 (Supports NVMe, AHCI) 2242/2280
- Up to 128GB ECC RDIMM DDR4 2400MHz or 64GB ECC/non-ECC UDIMM in 4 sockets
- Dual 10Gbe LAN and Intel® i350-AM2 dual port GbE LAN

Intel® Xeon® D-1541
8 cores | 45W

Flex-ATX Server & Motherboard Solutions

SYS-1018D-FRN8T 1U • 16.9" depth
- Intel® Xeon® SoC 16 Core, 32 Threads, 65W, 1.7~2.3GHz
- VT-d/x, TXT, AES-NI, Xeon® RAS, Built-in 10GbE
- Up to 128GB 2133MHz DDR4 RDIMM or 64GB 2133MHz ECC/Non-ECC UDIMM
- IPMI 2.0 with KVM Dedicated port
- 6x GbE LAN and Dual 10G SFP+
Supermicro X11 Single Processor servers now support E3-1200 v6 (Kaby Lake) series processors. Server motherboards coupled with the long life C236 PCH Chipset provide up to 7 years of extended life for embedded applications. These systems deliver breakthrough performance, high performance graphics, stronger security and power efficiency over previous generation products. The systems are ideal for a wide range of IoT applications, including industrial control and automation, retail kiosks and medical devices.

Server Solutions

- **SYS-5019S-MN4**
- **SYS-5019S-MT**
- **SYS-1019S-MC0T**
- **SYS-5019S-WR**
- **SYS-5019S-L**
- **SYS-5019S-ML**
- **SYS-5019S-M**
- **SYS-5019S-MR**

Motherboard Solutions

- **X11SSH-F**
- **X11SSH-LN4F**
- **X11SSH-TF**
- **X11SSH-CTF**
- **X11SSM**
- **X11SSM-F**
- **X11SSL**
- **X11SSL-F**
- **X11SSL-CF**
- **X11SSL-nF**
- **X11SSW-F**
- **X11SSW-TF**
- **X11SSW-4TF**
- **X11SSi-LN4F**
- **X11SSA-F**
- **X11SAE**
- **X11SAE-F**
- **X11SAE-M**
- **X11SSZ-F**
- **X11SSZ-QF**
- **X11SSZ-TLN4F**
# A2 Intel® Atom® C3000

High Density, Low Power Solutions *(Denverton, FCBGA 1310)*

Supermicro A2 Generation of Motherboards/Servers support Intel Atom Processors C3000 (Formerly Denverton) series **system-on-chip (SoC)** Processors. Based on low-power Goldmont microarchitecture and 14-nanometer process technology, this product family extends the scalability of Supermicro Products into industry-leading performance per watt, low thermal design power (TDP), and unprecedented levels of **configurable** high-speed I/O for accelerated innovation across networking, storage, Internet of Things (IoT), and scalable solutions. It also offers hardware assist Intel® QuickAssist Technology (Intel® QAT) to accelerate storage compression and cryptographic workloads.

## Server Solutions

### SYS-5019A-FTN4  1U • 9.8" depth

- 1 x 3.5" or 4x 2.5" internal drive bays
- 1 PCI-E 3.0 x4, 1 M.2 (M key for SSD, 2242/2280, PCI-E 3.0 x2 or SATA3)
- Up to 256GB ECC RDIMM DDR4 2400MHz or 64GB ECC/non-ECC UDIMM in 4 DIMM slots
- 4 GbE LAN, 1 dedicated IPMI LAN

![SYS-5019A-FTN4](image)

Intel® Atom® C3758  
8 cores | 25W

## Motherboards Solutions

### Mini-ITX

<table>
<thead>
<tr>
<th>Model</th>
<th>Processor</th>
<th>Cores</th>
<th>TDP</th>
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<tbody>
<tr>
<td>A2SDi-2C-HLN4</td>
<td>C3338</td>
<td>2</td>
<td>9W</td>
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<tr>
<td>A2SDi-4C-HLN4</td>
<td>C3558</td>
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<td>16W</td>
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<td>A2SDi-8C/8C+-HLN4</td>
<td>C3758</td>
<td>8</td>
<td>25W</td>
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<td>A2SDi-12C-HLN4</td>
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<td>A2SDi-16C-HLN4</td>
<td>C3958</td>
<td>16</td>
<td>31W</td>
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<td>A2SDi-H-TP4F</td>
<td>C3958</td>
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<td>31W</td>
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### Flex-ATX

<table>
<thead>
<tr>
<th>Model</th>
<th>Processor</th>
<th>Cores</th>
<th>TDP</th>
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<tbody>
<tr>
<td>A2SDi-TP8F/LN4F</td>
<td>C3858/C3850</td>
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<td>25W</td>
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<td>A2SDV-8C-LN8F/LN10PF</td>
<td>C3758</td>
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**Supermicro® Embedded Building Block Solutions - January 2019**
A1 Intel® Atom® C2000
High Density, Low Power Solutions (Rangley & Avoton, FCBA 1283)

Supermicro A1 Generation of Motherboards/Servers support Intel Atom Processors C2000 (Formerly Avoton, Rangeley) series system-on-chip (SoC) Processors. Based on low-power Silvermont microarchitecture and 22-nanometer process technology, this product family extends the scalability of Supermicro Products into smaller footprints, low power, and hardware assisted encryption/compression engines for networking communications, storage and intelligent systems applications. This product family offers multi-core processing capabilities (from two cores to eight cores), a range of thermal design power (TDP) from 7 to 20 watts, supports energy-efficient network designs with dual 1G to Dual 10G LAN Ports, Multiple Display capabilities, including fanless embedded designs.

Server Solutions

**SYS-5018A-LTN4** 1U • 9.8" depth
- Up to 2 DIMMs, 16GB of DDR3 ECC SODIMM 1333MHz
- 2x 3.5" or optional 4x 2.5" internal SATA2 and SATA3 Drive Bays
- 1x PCI-E 2.0 x8 Slot, 2x USB 3.0, 2x USB 2.0, VGA, COM,
- Quad GbE LAN ports, IPMI 2.0 on Dedicated LAN port
- 200W Gold Level Low-Noise Power Supply

**SYS-5028A-TN4** Mini Tower
- 4 DIMMs / 64GB of DDR3 ECC SODIMM 1600MHz
- 4x 3.5" hot-swap SATA trays: 2x 2.5" internal HDD Drive Bays
- 1 PCI-E 2.0 x8 Slot, 2 USB 3.0, 2 USB 2.0, VGA, COM,
- Quad GbE LAN ports, IPMI 2.0 on Dedicated LAN port
- 250W Bronze Level Low-Noise Power Supply

Motherboards Solutions

<table>
<thead>
<tr>
<th>Mini-ITX</th>
<th>Proprietary</th>
<th>mATX</th>
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<tr>
<td>A1SAi-2550F/2750F</td>
<td>A15A7-2550F/2750F</td>
<td>A1SAM-2550F/2750F</td>
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<td>A1SRi-2358F</td>
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<td>-2550F: C2550</td>
<td>-2550F: C2550</td>
<td>-2550F: C2550</td>
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<td>-2550F: C2550</td>
<td>-2550F: C2550</td>
</tr>
<tr>
<td>4 cores</td>
<td>4 cores</td>
<td>4 cores</td>
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<tr>
<td>14W</td>
<td>20W</td>
<td>14W</td>
</tr>
</tbody>
</table>

* Microsoft Azure Certified. Please see page 40 for complete list.
Embedded Building Block Solutions

**Intel® Xeon® E3-1500 v5**
*Pro Graphics P580 GTe4 (FCBGA 1440)*

Supermicro X11 Single Processor servers with E3-1500 v5 (Skylake-H) series processors provide up to 26% more overall graphics performance than the previous-generation E3-1200 v4 processors. For dense and high-capacity media processing over the net, these systems can deliver up to 18 AVC streams or 8 HEVC streams at 1080p 30 frames per second (FPS), or 2 HEVC streams at 4K 30 FPS.

**SYS-5019S-TN4** 1U • 9.8" depth
- Single socket FCBGA 1440 supports Intel® Xeon® processor E3-1585 v5, 8 Threads
- Intel® C236 chipset
- 1x 3.5" or 4x 2.5" HDD
- Up to 32GB Unbuffered ECC SO-DIMM DDR4 2133MHz; 2 DIMM slots
- 1 PCI-E 3.0 x16, 1 Mini-PCI-E with mSATA, 1 M.2 (M Key, 2242/2280)

**SYS-E300-9C** Mini-1U • 10" width
- 2 Internal 2.5" fixed drive bays with bracket
- 1 PCI-E 3.0 x16 AOC slot (LP) open slot (space share with top 2.5" drive bay)
- Up to 32GB unbuf. non-ECC SO-DIMM, DDR4-2666Mz; in 2 DIMM slots
- M.2 M key: SATA/PCI-E 3.0 x4, support 2242/2280 length
- M.2 E key: PCI-E 3.0 x1, support 2230 length
- 2x GbE LAN ports, 4 USB 3.1 (2 type A and 2 type C)

**X11 Intel® Core™ i7, i5, i3, 8th Gen Single Processor**
*Up to 6 cores with Q370 Chip Set (Coffee-Lake, FCBGA 1151)*

Supermicro single processor X11 designs feature the Intel® B360/Q370/H310 chipset which support the Intel® 8th Generation Core™ i7/i5/i3 processor family. With outstanding features that include up to 64GB non-ECC fast DDR4 DRAM in 4 DIMMS, USB 3.0/USB 3.1, PCI-E 3.0 M.2, and SATA 3.0 (6Gbps) HDD. With support for next generation graphics controller, 4K HD graphics resolution and multiple displays. Designed with performance, reliability, manageability and long life in mind, Supermicro’s single processor motherboards are the perfect solution for a variety of multi-tasking, heavy workload applications.
Embedded Building Block Solutions

Intel® Core i7, i5, i3 Single Processor
Higher Performance with improved graphics and better power efficiency (Skylake-S/Kabylake-S)

The 7th/6th Gen Intel® Core processors deliver significant improvements in graphics performance that offers stunning visuals for gaming as well as compelling 4K content creation and media playback via AVX 2.0. Offers enhanced security through AES instructions for faster encryption as well as BIOS/FW protection, new I/O connectivity and multiple independent display capabilities.

Server Solutions

SYS-1019S-M2 Compact 1U • 16.9" depth
- Up to 64GB Unbuffered non-ECC, DDR4-2400MHz in 4 DIMM slots
- Intel® 7th/6th Generation Core i7/i5/i3 series, Intel® Celeron® Intel® Pentium®
- Remote management via IPMI or vPro | Q170
- 2 Gigabit LAN ports, 2x DP, DVI-I, 3 independent displays
- Full Height and Full Length add on card support
- Power redundancy or BBP® support

SYS-5019S-M2 1U • 19.85" depth
- Intel® C236
- 4 cores | 80W
- Up to 4 DIMMs, 64 GB of 2400MHz DDR4 UDIMM ECC/NON-ECC
- Intel® Xeon E3-1200 v6/v5 & 7th/6th Gen Intel® Core™ i7, i5, i3, Pentium®, Celeron® processor in LGA1151 | C236
- 2 DP, DVI-I, total 3x independent display
- 4x 3.5" SATA3 hot-swap drive bays
- Intel® vPro™ and AMT
- 2 Gigabit LAN with AMT
- 1 PCI-E 3.0 x16 FH, FL slot
- 7 year life cycle

SYS-5029S-TN2 Mini Tower
- Intel® Q170
- 4 cores | 80W
- Compact Mini Tower 7th/6th Gen. Intel i7/i5/i3 Core Server
- 32GB Unbuffered non-ECC SO-DIMM, DDR4-2400MHz, in 2 DIMM slots
- 7th/6th Generation Intel® Core i7/i5/i3, Pentium and Celeron Processor in LGA1151 Socket | Q170
- Up to 4 Hot-Swap 3.5" SATA3 HDD, 1 internal 2.5" fixed HDD and 1 M.2 (M key 2242/80 PCI-E 3.0 x4)
- 2 Gigabit LAN ports
- Embedded long life
- Quiet Operation
- 1 slim DVD-ROM drive bay (shared with 1 internal 2.5" drive bay)

Motherboard Solutions

X11SS0/L
- 4 cores | 91W

X11SSZ-QF
- 4 cores | 91W

X11SSZ-TLN4F/F
- 4 cores | 91W

X11SSV-Q
- 4 cores | 91W

X11SSV-LVDS
- 4 cores | 91W
Embedded Building Block Solutions

Intel® Atom® & Intel® Pentium Processors
(Apollo Lake)

Supermicro X11 Generation of Motherboards/Servers support Intel Atom processor x5-E3900 and Pentium processor N4200 (Formerly Apollo Lake) series system-on-chip (SoC) Processors.

Based on Goldmont architecture and utilizing Intel’s industry-leading 14 nm process technology, the Supermicro high density, low-power Motherboard/Server solutions provide great options for value-segment buyers who need basic functionality at an affordable price. The solutions are ideal as IoT Gateway/ Edge Computing, that stronger focus on data collection and real-time communication over networks, provide telemetry and usage information helping to drive predictive analytics, even perform inference locally to take actions without latency. Empowers real-time computing in intelligent AIoT applications for retail, industrial and medical, and more.

Server Solutions

**SYS-E50-9AP-WIFI**
- Built-in Wifi/Bluetooth combo module and 2T2R antenna
- IPS1 with plastic chassis design for water/dust proof
- Cable-less design for increased reliability and cost efficiency
- Fan-less design with palm-size dimension

 Intel® Atom x5-E3940
4 cores | 9.5W

**SYS-E50-9AP**
Atom® x5-E3940
4 cores | 9.5W

**SYS-E50-9AP-L**
Atom® x5-E3940
4 cores | 9.5W

**SYS-E50-9AP-N5**
Atom® x5-E3940
4 cores | 9.5W

**SYS-E100-9AP**
Atom® x5-E3940
4 cores | 9.5W

**SYS-E102-9AP-L**
Atom® x5-E3930
2 cores | 6.5W

**SYS-E200-9AP**
Atom® x5-E3940
4 cores | 9.5W

**SYS-5029AP-TN2**
Atom® x5-E3940
4 cores | 9.5W

**SYS-E100-9APP**
Pentium™ N4200
4 cores | 6W

**SYS-E200-9B**
Pentium™ N3700
4 cores | 6W

Motherboard Solutions

**A2SAP-E/H/L**
A2SAP-H-E: 4 cores | 9.5W
A2SAP-L: 2 cores | 6.5W

**X11SAN**
with heatsink
4 cores | 6W

**A2SAN-E/H/L**
A2SAN-H-E: 4 cores | 9.5W
A2SAN-L: 2 cores | 6.5W

**X11SAN-WOHS**
without heatsink
4 cores | 6W

**A2SAN-E/H/L-WOHS**
A2SAN-H/E-WOHS: 4 cores | 9.5W
A2SAN-L-WOHS: 2 cores | 6.5W

**X11SAA**
4 cores | 6W

**A2SAA**
4 cores | 6W

**A2SAV**
4 cores | 6W

**A2SAV(2C)-L**
A2SAV-L: 4 cores | 9.5W
A2SAV-2C-L: 2 cores | 6.5W

**X11SBA-F**
4 cores | 6W

**X11SBA-LN4F**
4 cores | 6W

* Microsoft Azure Certified. Please see page 40 for complete list.
X11 7th Generation Intel® Core Processor

Intel® Core™ U-Series multi-chip package (MCP FCBGA1356)

Supermicro’s single processor Socket FCBGA1356 MCP feature the Intel® 7th Generation Core™ i7/i5/i3 processor ultra-low-power U-series with 2 Cores/4 threads for balance of power and performance. Outstanding features include up to 32GB of fast DDR4 DRAM in 2 DIMMS, USB 3.0/USB 3.1, M.2, Mini-PCIe, and SATA 3.0 (6Gbps) HDD. Support for next generation graphics controller, 4K HD graphics resolution and 3 displays with LVDS, HDMI and DP ports. Ideal for small form factor, energy-efficient, reliability, manageability, fanless and long life applications.

Fanless Compact Server Solutions

SYS-E100-9S*(-E*/-L)* 3.5” SBC

- 1 HDMI and 1 Display Port
- 1 USB3.1, 2 USB 3.0, 4 USB 2.0
- 4 COM (RS-232/422/485), 1 DIO via DB9
- 2 Gigabit Ethernet Ports
- TPM2.0 onboard
- Up to 32GB Unbuffered non-ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots
- 1 Full size Mini-PCI-E
- M.2 2280 B-Key for SATA SSD
- Lockable 12V DC 60W power adapter
- Fanless Cooling System
- Dimensions: 195 x 44 x 151mm (7.68” x 1.73” x 5.94”)

Motherboard Solutions

X11SSN-H/-E/-L

- 7th Gen Intel Core i7-7600U/i5-7300U/i3-7100U
- Up to 32GB Unbuffered non-ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots
- Dual LAN with Intel® Ethernet Controller I210IT & Intel® PHY I219LM LAN controller
- TPM2.0 onboard
- 1 Full size Mini-PCI-E with mSATA (1 USB 2.0, 1 PCI-E Gen3, 1 SATA Gen3)
- 4 USB 2.0 ports (4 headers, Type A), 2 USB 3.0 ports (2 rear), 1 USB 3.1 ports, 1 USB 3.0 OTG Header
- M.2 2242/3042/2280 B-Key (1 USB2.0, 2 PCI-E Gen3, 1 SATA Gen3)

X11SSN-H/-E/-L-WOHS

- 7th Gen Intel Core i7-7600U/i5-7300U/i3-7100U
- Up to 32GB Unbuffered non-ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots
- Dual LAN with Intel® Ethernet Controller I210IT & Intel® PHY I219LM LAN controller
- TPM2.0 onboard
- 1 Full size Mini-PCI-E with mSATA (1 USB 2.0, 1 PCI-E Gen3, 1 SATA Gen3)
- 4 USB 2.0 ports (4 headers, Type A), 2 USB 3.0 ports (2 rear), 1 USB 3.1 ports, 1 USB 3.0 OTG Header
- M.2 2242/3042/2280 B-Key (1 USB 2.0, 2 PCI-E Gen3, 1 SATA Gen3)

* Microsoft Azure Certified. Please see page 40 for complete list.
Supermicro’s new generation X11 DP/UP Embedded Motherboards offer the highest levels of performance, efficiency, security and scalability in the industry with up to: 3TB DDR4 2666MHz in 24 DIMM slots per node, 7 PCI-E slots, SAS 3.0/SATA 3.0/NVMe hot-swap HDD/SSD support, 10GBase-T/10G SFP+/56Gbps FDR InfiniBand networking options, SATA Disk-on-Module (DOM), and IPMI 2.0 plus KVM with dedicated LAN. The embedded boards offer 7 year life cycle.

**Intel® Xeon® Scalable Processor Servers**

**SP Server**

Intel® C621

28 cores | 165W

**SYX-5019P-M 1U • 17.2”**

- Single socket P (LGA 3647) supports Intel® Xeon® Scalable Processors
- Intel® C621 chipset
- 4 Hot-swap 3.5” SATA3 bays w/ RAID
- Up to 768GB ECC 3DS LRDIMM, up to DDR4-2666MHz; 6 DIMM slots
- 1 PCI-E 3.0 x16 slot (FH, HL)

**DP Server**

Intel® C621

28 cores | 165W

**SYS-6029P-TR 2U • 17.2”**

- Dual socket P (LGA 3647) supports Intel® Xeon® Scalable Processors, Dual UPI up to 10.4GT/s
- Up to 2TB ECC 3DS LRDIMM, up to DDR4-2666MHz; 16 DIMM slots, Supports Intel Optane Memory NVDIMM
- 4 PCI-E 3.0 x16, 2 PCI-E 3.0 x8 slots

**SP Motherboard Solutions**

- **X11SPL-F**
  - C621 | 28 cores | 165W

- **X11SPLH-nCTF/nCTPF**
  - C622 | 28 cores | 205W

- **X11SPLW-TF/CTF**
  - C622 | 28 cores | 205W

- **X11SPI-TF**
  - C622 | 28 cores | 205W

- **X11SPM-F/TF/TPF**
  - C622 | 28 cores | 165W

**DP Motherboard Solutions**

- **X11DPI-N/NT**
  - C621 | 28 cores | 165W
  - C624 | 28 cores | 165W

- **X11DPH-T**
  - C621 | 28 cores | 205W

- **X11DAi-N**
  - C621 | 28 cores | 205W

- **X11DPX-T**
  - C621 | 28 cores | 205W
## X10 Intel® Xeon® E5-2600 v4/v3 Processors

### Dual Processor System Solutions (Broadwell)

All X10 Dual Processor motherboards now support Intel’s latest E5-2600 v4 series (Broadwell) processor for even faster performance. Coupled with the long life C612 PCH that provides up to 7 years of extended availability, the E5-2600 v4 processor brings unparalleled performance, efficiency, scalability, and flexibility to handle the most demanding of embedded and embedded cloud workloads for years to come.

### NVMe Capability

Many X10 models now support U.2 (NVMe) storage capabilities for unmatched performance (throughput and latency), true hot-swap capability, and cost-effectiveness that beats using traditional add-on card based flash storage solutions.

### Server Solutions

**Intel® Xeon® E5-2600**

22 cores | 145W

**SYS-6018R-MD** Compact • 16.9"

- Short-Depth Chassis for X11/X10 DP Solutions
- 500W Platinum Level High-efficiency Power Supply
- 1x 3.5" or 4x 2.5" HDD
- 4x 40x56mm PWM fans
- 2 Full-Height I/O Expansion slot

### Motherboard Solutions

**X10DRD-i(N)T** 22 cores | 145W

- Dual E5-2600 v4/v3 CPUs up to 145W
- 8 DIMM DDR4 2133MHz (Up to 1TB)
- 10 SATA 3.0 HDD/SSD ports
- 4 PCI-E 3.0 x16 + 3 PCI-E 3.0 x8 + 1 PCI-E 3.0 x4 in x8 + 1 PCI-E 2.0 x4 in x8
- 7 USB 3.0, 2 SuperDOM, TPM support
- 13.05” x 10.5” ATX Form Factor
- 10 SATA3 HDD/SDD ports, Optional dual NVMe Ports (-N Option)

**X10DRL-i**

22 cores | 145W

**X10DAi/C**

22 cores | 145W

**X10DRC-T4+/LN4+**

22 cores | 145W

**X10DRL-CT**

22 cores | 145W

**X10DDW-i**

22 cores | 145W

**X10DRi-T4+/LN4+**

22 cores | 145W

**X10DRW-i(T)**

22 cores | 145W

**X10DRX**

22 cores | 145W
<table>
<thead>
<tr>
<th>Model</th>
<th>A2SDV-8C-LN10PF</th>
<th>A2SDV-8C-LN8F</th>
<th>A2SDV-4C-LN10PF</th>
<th>A2SDV-4C-LN8F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Atom® Processor C3758. Single Socket FCBGA1310 supported, CPU TDP support 25W</td>
<td>Intel® Atom® Processor C3558. Single Socket FCBGA1310 supported, CPU TDP support 16W</td>
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</tr>
<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>System on Chip</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>Flex ATX 9.0” x 7.25” (22.86cm x 18.42cm)</td>
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</tr>
<tr>
<td><strong>Memory</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Capacity &amp; Slots</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>1 PCI-E 3.0 x4 Option for Slot 6 or Slot 7 1 M.2 M-Key SATA/PCI-E 3.0 x2, 2242/2280 1 M.2 B-Key SATA/PCI-E 3.0 x2/USB 3.0, 3042/2280</td>
<td>1 PCI-E 3.0 x4 up to x2 (in x4 slot) *Number of PCI-E lane (option for Slot 6 or Slot 7) is configurable in BIOS. 0 or 2 PCI-E expansion slots is disabled when no SATA ports is set to 3. M.2 Interface: 1 SATA/PCI-E 3.0 x2/USB 3.0 M.2 Form Factor: 3042, 2280 M.2 Key: B-Key</td>
<td>1 PCI-E 3.0 x2 (in x4 slot) Option for Slot 6 or Slot 7 M.2 Interface: 1 SATA/PCI-E 3.0 x2/USB 3.0 M.2 Form Factor: 3042, 2280 M.2 Key: B-Key</td>
<td></td>
</tr>
<tr>
<td><strong>Onboard RAID Controller</strong></td>
<td>SoC controller for 5 SATA3 (6 Gbps) ports;</td>
<td>SoC controller for 5 SATA3 (6 Gbps) ports;</td>
<td>SoC controller for 3 SATA3 (6 Gbps) ports;</td>
<td></td>
</tr>
<tr>
<td><strong>Onboard LAN</strong></td>
<td>Quad LAN with Intel® C3000 SoC Quad LAN with Intel® Ethernet Controller I350-AM4 Dual LAN with Intel® I210-IS 1G SFP</td>
<td>Quad LAN with Intel® C3000 SoC Quad LAN with Intel® Ethernet Controller I350-AM4</td>
<td>Quad LAN with Intel® C3000 SoC Quad LAN with Intel® Ethernet Controller I350-AM4</td>
<td>Quad LAN with Intel® C3000 SoC Quad LAN with Intel® Ethernet Controller I350-AM4</td>
</tr>
<tr>
<td><strong>Onboard VGA/Display Ports</strong></td>
<td>1 VGA port, 1 Aspeed AST2400 BMC</td>
<td></td>
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</tr>
<tr>
<td><strong>USB Ports</strong></td>
<td>2 USB 2.0 ports (2 headers), 3 USB 3.0 ports (2 rear + 1 Type A)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other Onboard I/O Devices</strong></td>
<td>TPM Header, 1 COM Port (1 header)</td>
<td></td>
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</tr>
<tr>
<td><strong>Manageability</strong></td>
<td>IPMI2.0, NMI, SuperDoctor® 5, Watchdog</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Health Monitoring</strong></td>
<td>+12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 3.3V standby, 5 -fan status, Chassis intrusion header, VBAT</td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Thermal Control</strong></td>
<td>5x 4-pin fan headers (up to 5 fans), 5 fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other Features</strong></td>
<td>4-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Dual Cooling Zones, Intel® QuickAssist Technology, M.2 NGFF connector, RoHS, UID</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
### Motherboard Solutions

<table>
<thead>
<tr>
<th>Model</th>
<th>A2SDi-2C-HLN4F</th>
<th>A2SDi-4C-HLN4F</th>
<th>A2SDi-8C-HLN4F</th>
<th>A2SDi-8C+-HLN4F</th>
<th>A2SDi-12C-HLN4F</th>
<th>A2SDi-16C-HLN4F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Atom™ Processor C3338, Single Socket FCBGA1310 supported, CPU TDP support 9W</td>
<td>Intel® Atom™ Processor C3558, Single Socket FCBGA1310 supported, CPU TDP support 16W</td>
<td>Intel® Atom™ Processor C3758, Single Socket FCBGA1310 supported, CPU TDP support 25W</td>
<td>Intel® Atom™ Processor C3758, Single Socket FCBGA1310 supported, CPU TDP support 25W</td>
<td>Intel® Atom™ Processor C3858, Single Socket FCBGA1310 supported, CPU TDP support 31W</td>
<td></td>
</tr>
<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>Mini-ITX, 6.7” x 6.7” (17.02cm x 17.02cm)</td>
<td>Mini-ITX, 6.7” x 6.7” (17.02cm x 17.02cm)</td>
<td>Mini-ITX, 6.7” x 6.7” (17.02cm x 17.02cm)</td>
<td>Mini-ITX, 6.7” x 6.7” (17.02cm x 17.02cm)</td>
<td>Mini-ITX, 6.7” x 6.7” (17.02cm x 17.02cm)</td>
<td>Mini-ITX, 6.7” x 6.7” (17.02cm x 17.02cm)</td>
</tr>
<tr>
<td><strong>Memory Capacity &amp; Slots</strong></td>
<td>Up to 128GB Register DIMM RDIMM, DDR4-1866MHz Or 32GB Unbuffered ECC/ non-ECC UDIMM, DDR4-1866MHz, in 2 DIMM slots</td>
<td>Up to 256GB Registered ECC RDIMM, DDR4-2133MHz Or 64GB Unbuffered ECC/ non-ECC UDIMM, DDR4-2133MHz, in 4 DIMM slots</td>
<td>Up to 256GB Registered ECC RDIMM, DDR4-2400MHz Or 64GB Unbuffered ECC/ non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
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</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>1 PCI-E 3.0 up to x4 (in x4 slot) *Number of PCI-E lanes is configurable via BIOS setup: 0, 2, or 4. Total combined PCI-E lanes and SATA ports is up to 8.</td>
<td>1 PCI-E 3.0 up to x4 (in x4 slot) *Number of PCI-E lanes is configurable via BIOS setup: 0, 2, or 4. Total combined PCI-E lanes and SATA ports is up to 8.</td>
<td>1 PCI-E 3.0 x4 M.2 Interface: PCI-E 3.0 x2 and SATA M.2 Form Factor: 2242, 2280 M.2 Key: M-Key</td>
<td>1 PCI-E 3.0 x4 M.2 Interface: PCI-E 3.0 x2 and SATA M.2 Form Factor: 2242, 2280 M.2 Key: M-Key</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Onboard RAID Controller</strong></td>
<td>Up to 8 SATA3 (6 Gbps) ports via SoC. *Number of SATA ports is configurable via BIOS setup: 4, 6, or 8. Total combined PCI-E lanes and SATA ports is up to 8.</td>
<td>Up to 8 SATA3 (6 Gbps) ports via SoC. *Number of SATA ports is configurable via BIOS setup: 4, 6, or 8. Total combined PCI-E lanes and SATA ports is up to 8.</td>
<td>SoC controller for 12 SATA3 (6 Gbps) ports:</td>
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<tr>
<td><strong>Onboard LAN</strong></td>
<td>Quad LAN with Intel® C3000 SoC, GbE</td>
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</tr>
<tr>
<td><strong>Onboard VGA/Display Ports</strong></td>
<td>1 VGA port(s)</td>
<td>1 VGA port(s)</td>
<td>1 VGA port(s)</td>
<td>1 VGA port(s)</td>
<td>1 VGA port(s)</td>
<td>1 VGA port(s)</td>
</tr>
<tr>
<td><strong>USB Ports</strong></td>
<td>4 USB 2.0 ports (2 rear + 2 via header(s)), 1 USB 3.0 ports (via header(s) + 1 Type A)</td>
<td>4 USB 2.0 ports (2 rear + 2 via header(s)), 1 USB 3.0 ports (via header(s) + 1 Type A)</td>
<td>4 USB 2.0 ports (2 rear + 2 via header(s)), 1 USB 3.0 ports (via header(s) + 1 Type A)</td>
<td>4 USB 2.0 ports (2 rear + 2 via header(s)), 1 USB 3.0 ports (via header(s) + 1 Type A)</td>
<td>4 USB 2.0 ports (2 rear + 2 via header(s)), 1 USB 3.0 ports (via header(s) + 1 Type A)</td>
<td></td>
</tr>
<tr>
<td><strong>Other Onboard I/O Devices</strong></td>
<td>1 Port SuperDOM, TPM Header, 1 COM Port(s) (1 header),</td>
<td>1 Port SuperDOM, TPM Header, 1 COM Port(s) (1 header),</td>
<td>1 Port SuperDOM, TPM Header, 1 COM Port(s) (1 header),</td>
<td>1 Port SuperDOM, TPM Header, 1 COM Port(s) (1 header),</td>
<td>1 Port SuperDOM, TPM Header, 1 COM Port(s) (1 header),</td>
<td></td>
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<tr>
<td><strong>Manageability</strong></td>
<td>IPMI2.0, KVM with dedicated LAN, NMI, SuperDoctor* 5, Watchdog</td>
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<tr>
<td><strong>Health Monitoring</strong></td>
<td>+12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 3.3V standby, 4 -fan status, 4 fans with tachometer monitoring, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT</td>
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<tr>
<td><strong>Thermal Control</strong></td>
<td>4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring, Dual Cooling Zone, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors</td>
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<tr>
<td><strong>Other Features</strong></td>
<td>12V DC or ATX Power Source, 4-pin 12V DC power connector, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Dual Cooling Zones, Innovation Engine, RoHS, SDDC, System level control, UID, WOL</td>
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## Denerton

**12-Core, Dual/Quad 10GbE LAN, Intel® QAT, IPMI**

### USB Ports
- 4 USB 2.0 ports (4 headers), 2 USB 3.0 ports (2 rear)

### Other Onboard I/O Devices
- 1 Port SuperDOM, 1 COM Port (1 header)

### Manageability
- IPMI2.0, KVM with dedicated LAN, NMI, SuperDoctor® 5, Watchdog

### Health Monitoring
- +1.8V, +12V, +5V, 1.05 (PCH), 1.2V (VDIMM), 4-pin status, 4 fans with tachometer monitoring, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT, VCIG

### Thermal Control
- 4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring, Dual Cooling Zone, Fan speed control, Overheat LED indication, Pulse Width Modulated (PWM) fan connectors, Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors

### Other Features
- 12V DC or ATX Power Source, 4-pin 12V DC power connector, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Innovation Engine, RoHS, SDDC, System level control, UID, WOL

### Processor
- Intel® Atom™ Processor C3858

### Chipset/System Bus
- Mini-ITX, 6.7” x 6.7”

### Memory Capacity & Slots
- Up to 64GB Unbuffered ECC

### Expansion Slots
- 1 PCI-E 3.0 x4

### Onboard RAID Controller
- SoC controller for 4 SATA3 (6 Gbps) ports

### Onboard LAN
- Quad LAN with Intel® C3000 SoC

### Onboard VGA/Display Ports
- 1 VGA port(s), 1 Aspeed AST2400 BMC

### USB Ports
- 4 USB 2.0 ports (2 rear + 2 headers), 1 USB 3.0 port (- 1 Type A)

### Other Onboard I/O Devices
- 1 Port SuperDOM, 1 COM Port (1 header)

### Manageability
- IPMI2.0, NMI, SuperDoctor® 5, Watchdog

### Health Monitoring
- +12V, +3.3V, +5V, 1.05 (PCH), 1.2V (VDIMM), 3.3V standby, 6-pin status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT

### Thermal Control
- 6x 4-pin fan headers (up to 6 fans), 6 fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors

### Other Features
- 12V DC or ATX Power Source, 4-pin 12V DC power connector, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Dual Cooling Zones, Innovation Engine, Intel® QuickAssist Technology, M.2 NGFF connector, RoHS, SDDC, System level control, UID, WOL
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® Avoton Atom® Processor C2750 (8C/20W) or C2550 (4C/14W)</td>
<td>Intel® Rangeley Atom® Processor C2758 (8C/20W), C2358 (4C/15W), or C2352 (2C/7W)</td>
<td>Intel® Avoton Atom® Processor C2750 (8C/20W)</td>
<td>Intel® Avoton Atom® Processor C2758 (8C/20W) or C2558 (4C/15W)</td>
</tr>
<tr>
<td>Chipset/System Bus</td>
<td></td>
<td>System on Chip</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Form Factor</td>
<td>Mini-ITX 6.75” x 6.75”</td>
<td>MicroATX 9.6” x 7.5”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memory Capacity &amp; Slots</td>
<td>Up to 64GB ECC SODIMM in 4 slots (Up to 16GB for A1SRi-2358F)</td>
<td>Up to 64GB ECC SODIMM in 4 slots (Up to 16GB for A1SRi-2358F in 2 slots)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>1 PCI-E 2.0 x8</td>
<td>1 PCI-E 2.0 x8</td>
<td>1 PCI-E 2.0 x8</td>
<td>1 PCI-E 2.0 x4</td>
</tr>
<tr>
<td>Onboard RAID Controller</td>
<td>SoC controller for 4 SATA2 (3 Gbps) ports; 2 SATA3 (6 Gbps); (A1SRi-2358F: 2 SATA2)</td>
<td>SoC controller for 4 SATA2 (3 Gbps) ports; 2 SATA3 (6 Gbps); (A1SRi-2358F: 2 SATA3 + 2 SATA2)</td>
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</tr>
<tr>
<td>Onboard LAN</td>
<td>Quad GbE LAN (Intel® i354)</td>
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<td></td>
</tr>
<tr>
<td>Onboard VGA/Display Ports</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
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<td></td>
</tr>
<tr>
<td>USB Ports</td>
<td>4 USB 3.0 ports (2 rear + 1 via header + 1 Type A), 2 USB 2.0 ports (2 rear)</td>
<td>7 USB 2.0 ports (4 rear + 2 via headers + 1 Type A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Onboard I/O Devices</td>
<td>1 SATA DOM power connector</td>
<td>1 SATA DOM power connector</td>
<td>2 fast UART 16550 serial (1 rear, 1 header)</td>
<td>TPM 1.2 Header</td>
</tr>
<tr>
<td>Manageability</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Health Monitoring</td>
<td>Monitors CPU voltages, +1.8V, +12V, +3.3V, +5V, +5V Standby, Chassis intrusion header, Supports system management utility, System level control</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Thermal Control</td>
<td>3 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other Features</td>
<td>4-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Turbo Boost Technology or Intel® QuickAssist Technology, System level control, UID, WOL, -0°C -60°C operating temperature</td>
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</tr>
<tr>
<td>MODEL</td>
<td>A1SRM-LN7F-2758</td>
<td>A2SAV-L</td>
<td>A2SAV-2C-L</td>
<td>X11SAA</td>
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</tr>
<tr>
<td>Processor</td>
<td>Intel® Atom™ Processor C2758 (8C/20W) or C2358 (2C/7W)</td>
<td>A2SAV-L: Intel Atom™ Processor x5-E3930, Single Socket FCBGA1296 supported</td>
<td>A2SAV-2C-L: Intel Atom™ Processor x5-E3930, Single Socket FCBGA1296 supported</td>
<td>Intel® Pentium™ Processor N4200, Socket FCBGA1296 supported</td>
</tr>
<tr>
<td>Chipset/System Bus</td>
<td>System on Chip</td>
<td>M.2 Form Factor: 2280</td>
<td>M.2 Form Factor: 2242, 2280</td>
<td>M.2 Form Factor: 2242, 2280</td>
</tr>
<tr>
<td>Form Factor</td>
<td>MicroATX 8.0” x 9.6”</td>
<td>Mini-TX, 6.7” x 6.7” (17.02cm x 17.02cm)</td>
<td>Mini-TX, 6.7” x 6.7” (17.02cm x 17.02cm)</td>
<td>Mini-TX, 6.7” x 6.7” (17.02cm x 17.02cm)</td>
</tr>
<tr>
<td>Memory Capacity &amp; Slots</td>
<td>Up to 64GB ECC/Non ECC UDIMM in 4 slots (-2358 up to 16GB in 2 slots)</td>
<td>Up to 8GB 1866MHz DDR3L Non-ECC SO-DIMM in 1 socket</td>
<td>Up to 8GB Unbuffered non-ECC SO-DIMM, DDR3-1866MHz, in 1 DIMM slots</td>
<td>Up to 64GB ECC/Non ECC UDIMM in 4 slots (-2358 up to 16GB in 2 slots)</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>1 PCI-E 2.0 x4 (in x8 slot)</td>
<td>1 PCI-E 2.0 x2 (in x8 slot), 1 PCI-E 2.0 x2</td>
<td>1 PCI-E 2.0 x2 (in x8 slot), 1 PCI-E 2.0 x2</td>
<td>1 PCI-E 2.0 x2 (in x8 slot)</td>
</tr>
<tr>
<td>Onboard RAID Controller</td>
<td>SoC controller for 4 SATA3 (6 Gbps) ports; 2 SATA3 (6 Gbps)</td>
<td>SoC controller for 2 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>SoC controller for 2 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>SoC controller for 2 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
</tr>
<tr>
<td>Onboard LAN</td>
<td>Quad GbE LAN (Intel® i354)</td>
<td>Dual LAN with Intel® Ethernet Controller I210-AT</td>
<td>Dual LAN with Intel® Ethernet Controller I210-AT</td>
<td>Dual LAN with Intel® Ethernet Controller I210-AT</td>
</tr>
<tr>
<td>Onboard VGA/Display Ports</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 DP (DisplayPort) port(s), 1 HDMI port(s), 1 VGA port(s), 1 eDP (Embedded DisplayPort) port(s), 1 Intel® HD Graphics</td>
<td>4 USB 2.0 ports (2 rear + 4 via header(s))</td>
<td>4 USB 2.0 ports (2 rear + 4 via header(s))</td>
</tr>
<tr>
<td>USB Ports</td>
<td>7 USB 2.0 ports (4 rear + 2 via headers + 1 Type A)</td>
<td>4 USB 2.0 ports (2 rear + 2 via header(s))</td>
<td>2 USB 3.0 ports (2 rear via header(s))</td>
<td>2 USB 3.0 ports (2 rear via header(s))</td>
</tr>
<tr>
<td>Other Onboard I/O Devices</td>
<td>1 SATA DOM power connector 2 fast UART 16550 serial, TPM 1.2 Header, 1 superIO, 1 mSATA slot</td>
<td>1 Port SuperDOM, 3 COM Ports (1 rear, 2 headers), 1x COM in RJ45, 1x COM in RS232, 1x COM in RS485</td>
<td>1 Port SuperDOM, ALC 8888 HD Audio, TPM Header</td>
<td>1 Port SuperDOM, ALC 8888 HD Audio, TPM Header</td>
</tr>
<tr>
<td>Manageability</td>
<td>IPMI2.0, SuperDoctor® 5, Watchdog</td>
<td>SuperDoctor® 5, Watchdog</td>
<td>SuperDoctor® 5, Watchdog</td>
<td>SuperDoctor® 5, Watchdog</td>
</tr>
<tr>
<td>Health Monitoring</td>
<td>Monitors CPU voltages, +1.8V, +12V, +3.3V, +5V, +5V standby and total of four 1-pin fans headers with tachometer monitoring, supports system management utility, chassis intrusion header</td>
<td>A2SAV: +1.8V, +12V, +3.3V, +5V, +5V standby, Monitors CPU voltages, System level control</td>
<td>A2SAV: +1.8V, +12V, +3.3V, +5V, +5V standby, Monitors CPU voltages, System level control</td>
<td>A2SAV: +1.8V, +12V, +3.3V, +5V, +5V standby, Monitors CPU voltages, System level control</td>
</tr>
<tr>
<td>Thermal Control</td>
<td>3 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>2x 4-pin fan headers (up to 2 fans), Fan speed control, Low noise fan speed control, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>4-pin 12V DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL</td>
<td>4-pin 12V DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL</td>
</tr>
<tr>
<td>Other Features</td>
<td>4-pin 12V DC power connector, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® QuickAssist Technology, System level control, UID, WOL, 0°C-60°C operating temperature</td>
<td>4-pin 12V DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL</td>
<td>4-pin 12V DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL</td>
<td>4-pin 12V DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL</td>
</tr>
</tbody>
</table>

**Rangeley**
- 3 pairs LAN bypass, Intel® QAT, uATX

**Apollo Lake**
- E3940/E3930, Mini-ITX
- Pentium N4200, Mini-ITX
- Pentium N4200, 3.5" SBC

**Motherboard Solutions**
- Embedded Building Block Solutions - January 2019

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**Thermal Control**
- 2x 4-pin fan headers (up to 2 fans), Fan speed control, Low noise fan speed control, PWM fan speed control, System level control, Thermal control tachometer fan connectors

**Other Features**
- 4-pin 12V DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® QuickAssist Technology, System level control, UID, WOL, 0°C-60°C operating temperature
**Model**

<table>
<thead>
<tr>
<th>Model</th>
<th>A2SAN-H(WOHS)</th>
<th>A2SAN-E(WOHS)</th>
<th>X11SBA-LN4F</th>
<th>X95CAAX95CAA-L</th>
</tr>
</thead>
</table>

**Processor**
- **-H/E:** Intel® Atom™ Processor x5-E3940, Single Socket FCBGA1296 supported, CPU TDP support 9.5W
- **-L:** Intel® Atom™ Processor x5-E3930, Single Socket FCBGA1296 supported, CPU TDP support 6.5W

**Chipset/System Bus**
- System on Chip

**Form Factor**
- Pico-ITX 2.5” SBC, 4” x 2.83” (10.16cm x 7.19cm)
- 3.5” SBC, 5.7” x 4.0” (14.6cm x 10.16cm)
- Mini-ITX 6.7” x 6.7”

**Memory Capacity & Slots**
- Up to 8GB Unbuffered non-ECC SO-DIMM, DDR3-1600MHz, in 2 DIMM slots
- 8GB Unbuffered non-ECC SO-DIMM, DDR3-1600MHz, in 2 DIMM slots

**Expansion Slots**
- 1 Half size Mini-PCI-E (USB 2.0 x 1, PCI-E Gen2 x 1)
- 1 x Full size Mini-PCI-E (USB 2.0 x 1, PCI-E Gen2 x 1), 1 x M.2 B-Key for SATA or M.2 SSD (2242/3042 B-key module is supported by extender bracket)
- 1x 4-pin fan header (up to 1 fan), Fan speed control, System level control, Overheat LED indication, PWM fan control

**Onboard RAID Controller**
- SoC controller for 1 SATA3 (6 Gbps) port
- 8GB Unbuffered non-ECC SO-DIMM, DDR3-1600MHz, in 1 DIMM slots
- 1x 4-pin fan header (up to 1 fan), Fan speed control, System level control, Thermal control tachometer fan connectors

**Power Management**
- Supports system management utility, System level control
- 1 Port SuperDOM
- Supports system management utility, System level control

**Other Features**
- 4-pin 12v DC power connector, ACPI power management, ATX Power connector
- 4-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, System level control, WOL, 0°C -60°C operating temperature
<table>
<thead>
<tr>
<th>MODEL</th>
<th>X10SBA</th>
<th>X10SBA-L</th>
<th>X11SCM-F</th>
<th>X11SCM-LNBF</th>
<th>X11SCF</th>
<th>X11SCF-LN4F</th>
<th>X11SCW-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® Celeron® Processor J1900 10W FCGBA1170 , 2.0-2.42GHz</td>
<td>8th Generation Intel® Core™ i3/ Pentium®/Celeron® Processor, Intel® Xeon® Processor E-2100 series, Socket LGA 1151 supported, CPU TDP support Up to 95W TDP</td>
<td>Intel® C246</td>
<td>Intel® C246</td>
<td>Intel® C246</td>
<td>Intel® C246</td>
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<tr>
<td>Chipset/System Bus</td>
<td>System on Chip</td>
<td>Intel® C246</td>
<td>Intel® C246</td>
<td>Intel® C246</td>
<td>Intel® C246</td>
<td>Intel® C246</td>
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</tr>
<tr>
<td>Form Factor</td>
<td>Mini-ITX 6.7&quot; x 6.7&quot;</td>
<td>Mini-ATX 6.7&quot; x 6.7&quot;</td>
<td>Intel® C246</td>
<td>Intel® C246</td>
<td>Intel® C246</td>
<td>Intel® C246</td>
<td></td>
</tr>
<tr>
<td>Memory Capacity &amp; Slots</td>
<td>2 DIMM slots, 8GB with two 4GB SODIMM configuration, 1.35V only</td>
<td>Up to 128GB DDR4 ECC UDIMM, in 4 DIMM slots</td>
<td>Up to 128GB DDR4 ECC UDIMM, in 4 DIMM slots</td>
<td>Up to 128GB DDR4 ECC UDIMM, in 4 DIMM slots</td>
<td>Up to 128GB DDR4 ECC UDIMM, in 4 DIMM slots</td>
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<tr>
<td>Expansion Slots</td>
<td>1 PCI-E 2.0 x2</td>
<td>1 PCI-E 3.0 x8 (in x16 slot), 1 PCI-E 3.0 x8, M.2 Interface PCI-E 3.0 x4, M.2 Form Factor: 2280, 22110 M.2 Key: M-Key, Double Height Connector</td>
<td>1 PCI-E 3.0 x8 (in x16 slot), 1 PCI-E 3.0 x8, M.2 Interface PCI-E 3.0 x4, M.2 Form Factor: 2280, 22110 M.2 Key: M-Key, Double Height Connector</td>
<td>1 PCI-E 3.0 x8 (in x16 slot), 1 PCI-E 3.0 x8, M.2 Interface PCI-E 3.0 x4, M.2 Form Factor: 2280, 22110 M.2 Key: M-Key, Double Height Connector</td>
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<tr>
<td>Onboard RAID Controller</td>
<td>Intel® C246 controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C246 controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C246 controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C246 controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C246 controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
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<tr>
<td>Onboard LAN</td>
<td>Dual LAN with Intel® Ethernet Controller I210-AT</td>
<td>-F: Dual LAN with Intel® Ethernet Controller I210-AT</td>
<td>Dual LAN with Intel® Ethernet Controller I210-AT</td>
<td>Dual LAN with Intel® Ethernet Controller I210-AT</td>
<td>Dual LAN with Intel® Ethernet Controller I210-AT</td>
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<tr>
<td>Onboard VGA/Display Ports</td>
<td>Intel® HD Graphic VGA + HDMI + DisplayPort + eDP</td>
<td>1 VGA port</td>
<td>1 VGA port</td>
<td>1 VGA port</td>
<td>1 VGA port</td>
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</tr>
<tr>
<td>USB Ports</td>
<td>1 USB 3.0 ports (1 rear)</td>
<td>6 USB 2.0 ports (2 rear, 4 via headers); 2x USB 3.1 Gen2 ports (rear); 3x USB 3.1 Gen1 ports (1 Type-A, 2 via header)</td>
<td>6 USB 2.0 ports (2 rear, 4 via headers); 2x USB 3.1 Gen2 ports (rear); 3x USB 3.1 Gen1 ports (1 Type-A, 2 via header)</td>
<td>6 USB 2.0 ports (2 rear + 4 headers)</td>
<td>6 USB 2.0 ports (2 rear + 4 headers)</td>
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<tr>
<td>Other Onboard I/O Devices</td>
<td>4 COM ports support RS-232 (4 headers), TPM header, Audio Header</td>
<td>TPC 2.0 Header, Audio Header</td>
<td>TPC 2.0 Header, Audio Header</td>
<td>TPC 2.0 Header, Audio Header</td>
<td>TPC 2.0 Header, Audio Header</td>
<td></td>
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</tr>
<tr>
<td>Manageability</td>
<td>Intel® Node Manager, IPMI2.0, NMI, SPM, SMM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Intel® Node Manager, IPMI2.0, NMI, SPM, SMM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Intel® Node Manager, IPMI2.0, NMI, SPM, SMM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Intel® Node Manager, IPMI2.0, NMI, SPM, SMM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Intel® Node Manager, IPMI2.0, NMI, SPM, SMM, SUM, SuperDoctor® 5, Watchdog</td>
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<tr>
<td>Health Monitoring</td>
<td>Monitors CPU voltages, +3.3V, +5V, +12V &amp; +5V standby and total of two 4-pin fan headers with tachometer monitoring, supports system management utility, chassis intrusion header</td>
<td>+12V, +3.3V, +5V, +5V standby, 6-fan status, Chassis intrusion header, Chipset Voltage, Memory Voltages, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, 6-fan status, Chassis intrusion header, Chipset Voltage, Memory Voltages, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, 6-fan status, Chassis intrusion header, Chipset Voltage, Memory Voltages, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, 6-fan status, Chassis intrusion header, Chipset Voltage, Memory Voltages, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
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<tr>
<td>Thermal Control</td>
<td>Overheat LED indication, thermal control tachometer fan connectors</td>
<td>6x 4-pin fan headers (up to 6 fans), 6 fans with tachometer status monitoring, Fan speed control, Overheat LED indication, Thermal control tachometer fan connectors</td>
<td>6x 4-pin fan headers (up to 6 fans), 6 fans with tachometer status monitoring, Fan speed control, Overheat LED indication, Thermal control tachometer fan connectors</td>
<td>6x 4-pin fan headers (up to 6 fans), 6 fans with tachometer status monitoring, Fan speed control, Overheat LED indication, Thermal control tachometer fan connectors</td>
<td>6x 4-pin fan headers (up to 6 fans), 6 fans with tachometer status monitoring, Fan speed control, Overheat LED indication, Thermal control tachometer fan connectors</td>
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<tr>
<td>Other Features</td>
<td>ACPI power management, WOL, control of power-on for recovery from AC power loss, Auxiliary Thermal Monitor &amp; CPU thermal trip support for processor protection, 0°C – 60°C operating temperature</td>
<td>ACPI power management, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Dual Cooling Zones, M.2 NGFF connector, Node Manager Support, UID, WOL</td>
<td>ACPI power management, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Dual Cooling Zones, M.2 NGFF connector, Node Manager Support, UID, WOL</td>
<td>ACPI power management, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, Node Manager Support, UID, WOL</td>
<td>ACPI power management, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, Node Manager Support, UID, WOL</td>
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<tr>
<td>MODEL</td>
<td>X11SCV-Q</td>
<td>X11SCV-L</td>
<td>X11SCQ</td>
<td>X11SCZ-F</td>
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<tr>
<td>Processor</td>
<td>8th Generation Intel® Core™ i7/i5/i3/Pentium®/Celeron® Processor. Single Socket H4 (LGA 1151) supported, CPU TDP support up to 65W TDP</td>
<td>8th Generation Intel® Core™ i7/i5/i3/Pentium®/Celeron® Processor. Single Socket H4 (LGA 1151) supported, CPU TDP support up to 95W TDP</td>
<td>8th Generation Intel® Core™ i3 Processor, Intel® Celeron®, Intel® Pentium®, Intel® Xeon® E processor (Coffee Lake-S) Workstation.</td>
<td>Intel® Xeon® E Processor, Embedded, High Performance, IPMI</td>
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<tr>
<td>Chipset/System Bus</td>
<td>Intel® Q370</td>
<td>Intel® H310</td>
<td>Intel® Q370</td>
<td>Intel® C246</td>
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<tr>
<td>Form Factor</td>
<td>Mini-ITX 6.7&quot; x 6.7&quot; (17.02cm x 17.02cm)</td>
<td>Mini-ITX 6.7&quot; x 6.7&quot; (17.02cm x 17.02cm)</td>
<td>uATX 9.6&quot; x 9.6&quot; (24.38cm x 24.38cm)</td>
<td>uATX 9.6&quot; x 9.6&quot; (24.38cm x 24.38cm)</td>
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<tr>
<td>Memory Capacity &amp; Slots</td>
<td>Up to 32GB Unbuffered non-ECC SO-DIMM, DDR4-2666MHz, in 2 DIMM slots</td>
<td>Up to 64GB Unbuffered non-ECC UDIMM, DDR4-2666MHz, in 4 DIMM slots</td>
<td>Up to 64GB Unbuffered non-ECC UDIMM, DDR4-2666MHz, in 4 DIMM slots</td>
<td>Up to 64GB Unbuffered non-ECC UDIMM, DDR4-2666MHz, in 4 DIMM slots</td>
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</tr>
<tr>
<td>Expansion Slots</td>
<td>1 PCI-E 3.0 x16, 1 PCI-E 3.0 x2 and 1 CNV/PCL-E 3.0 x1</td>
<td>1 PCI-E 3.0 x16, 1 PCI-E 3.0 x1, 2 PCI-E 3.0 x4, M.2 Interface: 1 PCI-E 3.0 x4, M.2 Form Factor: 2242/2280/22110, M.2 Key: M-Key, E-Key</td>
<td>1 PCI-E 3.0 x16, 1 PCI-E 3.0 x1, 2 PCI-E 3.0 x4, M.2 Interface: 1 PCI-E 3.0 x4, M.2 Form Factor: 2280/22110, M.2 Key: M-Key</td>
<td>1 PCI-E 3.0 x16, 2 PCI-E 3.0 x4 (in x8 slot) M.2 Interface: 1 SATA/PCI-E 3.0 x4, M.2 Form Factor: 2280/22110, M.2 Key: M-Key</td>
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<tr>
<td>Onboard RAID Controller</td>
<td>Intel® Q370 controller for 5 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® H310 controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® Q370 controller for 6 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C246 controller for 5 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
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<tr>
<td>Onboard LAN</td>
<td>Single LAN with Intel® Ethernet Controller I210-AT</td>
<td>Single LAN with Intel® Ethernet Controller I210-AT</td>
<td>Single LAN with Intel® Ethernet Controller I210-AT</td>
<td>Single LAN with Intel® Ethernet Controller I210-AT</td>
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</tr>
<tr>
<td>Onboard VGA/Display Ports</td>
<td>1 DVI - D port, 1 HDMI port, 1 DP (DisplayPort) port, 1 eDP (Embedded DisplayPort) port, 3 Independent Displays</td>
<td>1 DVI - D port, 1 HDMI port, 1 DP (DisplayPort) port, 1 eDP (Embedded DisplayPort) port, 3 Independent Displays</td>
<td>1 DVI - D port, 1 HDMI port, 1 DP (DisplayPort) port, 1 eDP (Embedded DisplayPort) port, 3 Independent Displays</td>
<td>1 DVI - D port, 1 HDMI port, 1 DP (DisplayPort) port, 1 eDP (Embedded DisplayPort) port, 3 Independent Displays</td>
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<td></td>
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</tr>
<tr>
<td>USB Ports</td>
<td>4 USB 2.0 ports (4 headers), 6 USB 3.1 ports (4 rears (2 Type A + 2 Type C) + 2 headers)</td>
<td>4 USB 2.0 ports (4 headers)</td>
<td>6 USB 2.0 ports (2 rear + 4 headers), 6 USB 3.1 ports (4 rears (2 Type A + 2 Type C) + 2 headers)</td>
<td>7 USB 2.0 ports (6 headers, 1 Type A) 2 USB 3.1 Gen1 ports(2 headers) 6 USB 3.1 Gen2 ports (3 Rears Type A + 1 Rear Type C, 2 headers)</td>
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<tr>
<td>Other Onboard I/O Devices</td>
<td>ALC885 HD Audio, TPM 2.0 Header &amp; Chip both 6 COM Ports (2 rear, 4 headers); 4 COM port support RS-232 thru pin header; 2COM support RS-232/422/485 in rear</td>
<td>7.1 HD Audio, TPM Header &amp; Chip both 6 COM Ports (6 headers), support RS-232</td>
<td>ALC885 HD Audio, TPM Header &amp; Chip both 6 COM Ports (4 headers)</td>
<td>ALC885 HD Audio, TPM Header &amp; Chip both 6 COM Ports (4 headers)</td>
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</tr>
<tr>
<td>Manageability</td>
<td>AMT, NMI, vPro, Watchdog</td>
<td>NMI, SuperDoctor® 5, vPro, Watchdog</td>
<td>AMT, NMI, SuperDoctor® 5, vPro, Watchdog</td>
<td>IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, SuperDoctor® 5, Watchdog</td>
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<td></td>
</tr>
<tr>
<td>Health Monitoring</td>
<td>+1.8V, +3.3V, +5V, +5V standby, 3-fan status, Chassis intrusion header, HT, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, 3-fan status, Chassis intrusion header, Memory Voltages, Monitors CPU voltages, System temperature, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (DDMIM), 3.3V standby, 6-fan status, Chassis intrusion header, Memory Voltages, Monitors CPU voltages, System temperature, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (DDMIM), 3.3V standby, 6-fan status, Chassis intrusion header, Memory Voltages, Monitors CPU voltages, System temperature, VBAT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal Control</td>
<td>3x 4-pin fan headers (up to 3 fans), 3 fans with tachometer monitoring, Low noise fan speed control, Overheat LED indication, PWM fan speed control, Thermal control tachometer fan connectors</td>
<td>3x 4-pin fan headers (up to 3 fans), 3 fans with tachometer monitoring, System level control, Thermal control tachometer fan connectors</td>
<td>4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring, System level control, Thermal control tachometer fan connectors</td>
<td>6x 4-pin fan headers (up to 6 fans), 6 fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control</td>
<td></td>
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</tr>
<tr>
<td>Other Features</td>
<td>12V DC or ATX Power Source, 8-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion detection, RoHS, Halogen Free, WOL</td>
<td>ACPI power management, ATX Power connector, Chassis intrusion header, M.2 NGFF connector, RoHS</td>
<td>12V DC or ATX Power Source, 8-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Dual Cooling Zones, M.2 NGFF connector, RoHS, UID</td>
<td>12V DC or ATX Power Source, 8-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Dual Cooling Zones, M.2 NGFF connector, RoHS, UID</td>
<td></td>
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</tr>
</tbody>
</table>
## I/O Devices

- **Other Onboard I/O Devices**
  - 7.1 HD Audio, TPM Header, 6 COM Ports (6 headers), support RS-232
  - 1 Port SuperDOM, ALC885 HD Audio, TPM Header & Chip both 4 COM Ports (4 headers)

- **Manageability**
  - NMI, SuperDoctor® 5, Watchdog
  - +12V, +3.3V, +5V, 1.2V (VDIMM), 4 fans with tachometer monitoring, Chassis intrusion header, Memory Voltages, Monitors CPU voltages, System temperature, BVT

- **Health Monitoring**
  - 4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring, Fan speed control
  - 5x 4-pin fan headers, 5 fans with tachometer status monitoring, Dual Cooling Zone

- **Thermal Control**
  - 8-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, ROHS, WOL

## Chipset/System Bus

- **Form Factor**
  - uATX 9.6” x 9.6” (24.38cm x 24.38cm)

- **Memory Capacity & Slots**
  - Up to 32GB Unbuffered non-ECC DDR4-2666MHz, in 2 DIMM slots
  - 1 PCI-E 3.0 x16
  - 2 PCI-E 2.0 x4
  - 1 PCI-E 2.0 x1

## Expansion Slots

- **M.2 Interface**
  - 2242, 2280, 3042
  - M.2 Form Factor:
    - B-Key
  - M.2 Key:
    - A

## Onboard RAID Controller

- **Onboard LAN**
  - 1 DVI - D port, 1 HDMI port, 1 DP (DisplayPort) port, 1 eDP (Embedded DisplayPort) port, 1 Intel® HD Graphics, 2 Independent Displays

- **USB Ports**
  - 6 USB 2.0 ports (2 rear + 4 headers), 4 USB 3.1 ports (4 rear (2 Type A + 2 Type C))
  - 7 USB 2.0 ports (6 headers + 1 Type A), 2 USB 3.0 ports (2 headers)
  - 6 USB 3.1 ports (4 rear (3 Type A + 1 Type C) + 2 headers)

## Processor

- **Model**
  - X11SCQ-L
  - X11SCZ-Q
  - X11SSN-H(DC/VOHS), X11SSN-E(DC/VOHS), X11SSN-L(DC/VOHS)
  - X11SV-LVDS

## Other Features

- **ACPI power management, ATX Power connector, Chassis intrusion header, ROHS, WOL
  - 8-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Dual Cooling Zones, M2 NGFF connector, ROHS

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### Motherboard Solutions

**Model**
- X11SCQ-L
- X11SCZ-Q
- X11SSN-H(DC/VOHS), X11SSN-E(DC/VOHS), X11SSN-L(DC/VOHS)
- X11SV-LVDS

**Form Factor**
- uATX 9.6” x 9.6” (24.38cm x 24.38cm)

**Memory Capacity & Slots**
- Up to 32GB Unbuffered non-ECC DDR4-2666MHz, in 2 DIMM slots
- 1 PCI-E 3.0 x16
- 2 PCI-E 2.0 x4
- 1 PCI-E 2.0 x1

**Expansion Slots**
- M.2 Form Factor:
  - B-Key
- M.2 Key:
  - A

**Onboard RAID Controller**
- Single LAN with Intel® Ethernet Controller I210-AT

**USB Ports**
- 6 USB 2.0 ports (2 rear + 4 headers), 4 USB 3.1 ports (4 rear (2 Type A + 2 Type C))

**Health Monitoring**
- +12V, +3.3V, +5V, 1.2V (VDIMM), 4 fans with tachometer monitoring, Chassis intrusion header, Memory Voltages, Monitors CPU voltages, System temperature, BVT

**Thermal Control**
- 4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring, Fan speed control

**Other Features**
- ACPI power management, ATX Power connector, Chassis intrusion header, ROHS, WOL
- 8-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal tip trip support for processor protection, Intel® Smart Response Technology, M.2 NGFF connector, ROHS, System level control, WOL
## Motherboard Solutions

### i7/i5/i3/Pentium®/Celeron®

- vPro AMT IPMI Embedded
- 1U Optimized Core i7 uATX

### i7/i5/i3/Pentium®/Celeron®

- vPro AMT IPMI, Dual 10GbE Embedded
- 1U Optimized uATX

### i7/i5/i3/Pentium®/Celeron®

- vPro AMT, mini-ITX
- 1U Optimized Core i7 uATX

### i7/i5/i3/Pentium®/Celeron®

- vPro AMT, Embedded
- 1U Optimized Core i7 uATX

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### MODEL

<table>
<thead>
<tr>
<th>X11SSZ-QF</th>
<th>X11SSZ-F X11SSZ-TLN4F</th>
<th>X11SSV-Q X11SSQ X11SSQ-L</th>
</tr>
</thead>
</table>

**Processor**

- Intel® 7th/6th Generation Core™ i7/i5/i3 series, Intel® Pentium®, Intel® Celeron®, Socket H4 (LGA 1151) supported; CPU TDP support 95W
- Intel® Xeon® processor E3-1200 v6/v5 product family, Intel® 7th/6th Generation Core™ i7/i5/i3 series, Intel® Pentium®, Intel® Celeron®, Socket H4 (LGA 1151) supported; CPU TDP support 95W
- Intel® 7th/6th Gen Core i7/i5/i3 series, Intel® Celeron®, Intel® Pentium®
- Intel® Celeron®, Intel® Pentium® processors; CPU TDP support up to 95W TDP

**Chipset/System Bus**

- Intel® Q170
- Intel® C326
- Intel® Q170
- Intel® C170

**Form Factor**

- uATX 9.6” x 9.6”
- Mini-ITX 6.7” x 6.7”
- uATX 9.6” x 9.6”
- uATX 9.6” x 9.6”

**Memory Capacity & Slots**

- 2242/2280 M.2 PCI-E x4 with SATA support, 2280/2242 M.2 PCI-E x2
- Mini-PCI-E with mSATA support, 2242/2280 M.2 PCI-E x4 with SATA support
- 1 PCI-E 3.0 x16
- 1 PCI-E 3.0 x16, 2 PCI-E 3.0 x4, 1 PCI-E 3.0 x1, 2 PCI-E 3.0 x1, 1 PCI-E 2.0 x1
- 1 PCI-E 3.0 x16, 2 PCI-E 3.0 x4, 1 PCI-E 3.0 x1, 2 PCI-E 3.0 x1, 1 PCI-E 2.0 x1

**Expansion Slots**

- 1 PCI-E 3.0 x16 (in x16 slot)
- 1 PCI-E 3.0 x16 (in x8 slot)
- 1 PCI-E 3.0 x16, 2 PCI-E 3.0 x4 (in x8 slot)
- 1 PCI-E 3.0 x16, 2 PCI-E 3.0 x4 (in x8 slot)

**Onboard RAID Controller**

- Intel® Q170 controller for 4 SATA3 (6 Gbps) ports; RAID 0, 1, 5, 10
- Intel® C326 controller for 4 SATA3 (6 Gbps) ports; RAID 0, 1, 5, 10
- Intel® Q170 controller for 5 SATA3 (6 Gbps) ports; RAID 0, 1, 5, 10
- Intel® Q170 controller for 6 SATA3 (6 Gbps) ports; RAID 0, 1, 5, 10

**Onboard LAN**

- Dual GbE LAN with Intel® i219LM and i210AT
- Dual GbE LAN with Intel® i219LM and i210AT
- Dual GbE LAN with Intel® i219LM and i210AT
- Dual GbE LAN with Intel® i219LM and i210AT

**Onboard VGA/Display Ports**

- 2 DP (DisplayPort)
- 1 HDMI
- 1 DP (DisplayPort)
- 1 HDMI 1 DP-D

**USB Ports**

- 4 USB 3.0 ports (2 rear + 2 viahgeader)
- 9 USB 2.0 ports (2 rear + 6 viahgeaders + 1 Type A)
- 4 USB 3.0 ports (2 rear + 2 viahgeader)
- 9 USB 2.0 ports (2 rear + 4 viahgeaders + 1 Type A)
- 4 USB 3.0 ports (2 rear + 2 viahgeader)
- 9 USB 2.0 ports (2 rear + 4 viahgeaders + 1 Type A)
- 4 USB 3.0 ports (2 rear + 2 viahgeader)
- 9 USB 2.0 ports (2 rear + 4 viahgeaders + 1 Type A)
- 4x USB 3.0 ports (2 rear + 2 viahgeader)
- 6 USB 2.0 ports (2 rear + 4 viahgeaders + 1 Type A)
- 4x USB 3.0 ports (2 rear + 2 viahgeader)
- 6 USB 2.0 ports (2 rear + 4 viahgeaders + 1 Type A)
- 4x USB 3.0 ports (2 rear + 2 viahgeader)
- 6 USB 2.0 ports (2 rear + 4 viahgeaders + 1 Type A)

**Other Onboard I/O Devices**

- 1 Port SuperDOM
- 2 SuperDOM Ports
- 1 Port SuperDOM
- 1 Port SuperDOM
- 2 SuperDOM Ports
- 1 Port SuperDOM
- 1 Port SuperDOM
- 1 Port SuperDOM

**Manageability**

- IPMI 2.0 + KVM with dedicated LAN, AMT/vPRO, NMI, SuperDoctor 5, Watchdog
- AMT/vPRO, NMI, SuperDoctor 5, Watchdog
- AMT/vPRO, NMI, SuperDoctor 5, Watchdog
- AMT/vPRO, NMI, SuperDoctor 5, Watchdog
- AMT/vPRO, NMI, SuperDoctor 5, Watchdog
- AMT/vPRO, NMI, SuperDoctor 5, Watchdog
- AMT/vPRO, NMI, SuperDoctor 5, Watchdog

**Health Monitoring**

- +1.8V, +12V, +3.3V, +5V, +5V standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control
- Monitors for CPU Cores, +1.8V, +3.3V, +5V, +12V, +5V Standby, VBAT, HT, Memory, Chassis Voltages.

**Thermal Control**

- 6 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors
- 6 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors
- 6 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors
- 6 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors

**Other Features**

- 8-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, System level control, UID, WOL, RSTe
- 8-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, System level control, UID, WOL, RSTe
- 8-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, System level control, UID, WOL, RSTe
- 8-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, System level control, UID, WOL, RSTe
- 8-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, System level control, UID, WOL, RSTe

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**Form Factor**

- uATX 9.6” x 9.6”
- Mini-ITX 6.7” x 6.7”
- uATX 9.6” x 9.6”
- uATX 9.6” x 9.6”
## Motherboard Solutions - January 2019

<table>
<thead>
<tr>
<th>Model</th>
<th>X11SDV-8C-TP8F</th>
<th>X11SDV-12C-TP8F</th>
<th>X11SDV-16C-TP8F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>8C: Intel® Xeon® Processor D-2133IT</td>
<td>8C+: Intel® Xeon® Processor D-2141I</td>
<td>8C: Intel® Xeon® Processor D-2133IT</td>
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<tr>
<td></td>
<td>12C: Intel® Xeon® Processor D-2166NT</td>
<td>12C: Intel® Xeon® Processor D-2166NT</td>
<td>12C: Intel® Xeon® Processor D-2166NT</td>
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<tr>
<td></td>
<td>16C+: Intel® Xeon® Processor D-2183IT</td>
<td>16C+: Intel® Xeon® Processor D-2183IT</td>
<td>16C+: Intel® Xeon® Processor D-2183IT</td>
</tr>
<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>Flex ATX 9&quot; x 7.25&quot; (22.86cm x 18.42cm)</td>
<td>Mini-ITX 6.75&quot; x 6.75&quot; (17.15cm x 17.15cm)</td>
<td>System level control, Thermal control tachometer fan connectors</td>
</tr>
<tr>
<td><strong>Memory Capacity &amp; Slots</strong></td>
<td>Up to 256GB Registered ECC RDIMM, DDR4-2400MHz; Up to 512GB ECC LRDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
<td>Up to 256GB Registered ECC RDIMM, DDR4-2400MHz; Up to 512GB ECC LRDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
<td>Up to 128GB ECC RDIMM, DDR4-2133MHz, in 4 DIMM slots</td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>1 PCI-E 3.0 x8, 1 PCI-E 3.0 x16</td>
<td>1 PCI-E 3.0 x8, 1 PCI-E 3.0 x16</td>
<td>1 PCI-E 3.0 x8, 1 PCI-E 3.0 x16</td>
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<tr>
<td></td>
<td>M.2 Interface: 1 PCI-E 3.0 x4 and 1 SATA/PCE-3.0 x2 and 1 SATA/PCE-3.0 x2</td>
<td>M.2 Interface: 1 PCI-E 3.0 x4 and 1 SATA/PCE-3.0 x2</td>
<td>M.2 Interface: 1 PCI-E 3.0 x4 and 1 SATA/PCE-3.0 x2</td>
</tr>
<tr>
<td></td>
<td>M.2 Form Factor: 2242/2280 M-Key, B-Key</td>
<td>M.2 Form Factor: 2242/2280 M-Key, B-Key</td>
<td>M.2 Form Factor: 2242/2280 M-Key, B-Key</td>
</tr>
<tr>
<td><strong>Onboard RAID Controller</strong></td>
<td>SoC controller for 12 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>SoC controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>SoC controller for 6 SATA3 (6 Gbps) ports; RSTe, Intel® Raid 0,1,5,10</td>
</tr>
<tr>
<td><strong>Onboard LAN</strong></td>
<td>Dual LAN with Intel® Ethernet Controller 8788-AM4 Dual LAN with 10G SFP+ via SoC, 8 Core, 128GB Memory</td>
<td>Dual LAN with Intel® X557 via SoC</td>
<td>Dual 10GbE LAN with Intel® i350-AM2</td>
</tr>
<tr>
<td><strong>Onboard VGA/Display Ports</strong></td>
<td>1 VGA D-Sub Connector port, 1 Aspeed AST2500 BMC</td>
<td>1 VGA port, 1 Aspeed AST2500 BMC</td>
<td>1 VGA port, 1 Aspeed AST2500 BMC</td>
</tr>
<tr>
<td><strong>USB Ports</strong></td>
<td>2 USB 2.0 ports (2 headers), 2 USB 3.0 ports (2 rear) Type A</td>
<td>4 USB 2.0 ports (4 headers)</td>
<td>4 USB 2.0 ports (4 headers)</td>
</tr>
<tr>
<td><strong>Other Onboard Devices</strong></td>
<td>TPM 2.0 Header, 1 COM Port (1 header), TPM Header</td>
<td>1 Port SuperDOM, TPM Header, 1 COM Port (1 header), GPO and SMbus headers</td>
<td>1 Port SuperDOM, TPM Header, 1 COM Port (1 header), GPO and SMbus headers</td>
</tr>
<tr>
<td><strong>Manageability</strong></td>
<td>Intel® Node Manager, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, 5/8m, 12V, 16-Core, 64GB Memory</td>
<td>Intel® Node Manager, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, 5/8m, 12V, 16-Core, 64GB Memory</td>
<td>Redfish 1.0 + IPMI 2.0 + KVM with dedicated LAN, NMI, SSM, SUM, SuperDoctor® 5, Watchdog</td>
</tr>
<tr>
<td><strong>Health Monitoring</strong></td>
<td>+1.5V, +12V, +3.3V, +5V, +5V standby, 5 (4-pin), 5 -fan status, Monitors CPU voltages, System level control</td>
<td>+1.8V, +5V, +3.3V, +12V (VIDM4), 4 -fan status, Chassis intrusion indicator, Supports system management utility, System level control, VBAT</td>
<td>+1.8V, +5V, +3.3V, +12V (VIDM4), 4 -fan status, Chassis intrusion indicator, Supports system management utility, System level control, VBAT</td>
</tr>
<tr>
<td><strong>Thermal Control</strong></td>
<td>5x 4-pin fan connectors (up to 5 fans), 5 fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control, Overheat LED indication, PWAN fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>3x 4-pin fan headers (up to 3 fans), 3 fans with tachometer monitoring, Dual Cooling Zone, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Support 3-pin fans (w/o speed control)</td>
<td>4-pin, Fan speed control, Overheat LED indication, PWAN fan speed control, System level control, Thermal control tachometer fan connectors</td>
</tr>
<tr>
<td><strong>Other Features</strong></td>
<td>12V DC or ATX Power Source, 8-pin 12V DC power connector, ACPI power management, ATX Power connector, Chassis intrusion indicator, CPU thermal trip support for processor protection, Dual Cooling Zones, M.2 NGFF connector, RoHS, Intel® QuickAssist Technology</td>
<td>12V DC or ATX Power Source, 8-pin 12V DC power connector, ACPI power management, ATX Power connector, Chassis intrusion indicator, Dual Cooling Zones, Node Manager Support, RoHS, UID</td>
<td>4-pin 12V DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, Node Manager Support, SDDC, System level control, UID, WOL</td>
</tr>
</tbody>
</table>

**Skylake-D**
- 8/12/16-Core, Dual 10GbE, Dual 10G SFP+
- Quad 10GbE LANs
- 12V DC or ATX Power Source, 8-pin 12V DC power connector, ACPI power management, ATX Power connector, Chassis intrusion indicator, CPU thermal trip support for processor protection, Dual Cooling Zones, M.2 NGFF connector, RoHS, Intel® QuickAssist Technology

**Skylake-D**
- 4/8/12-Core, Dual 10GbE
- 128GB Memory, Dual 10GbE
- 12V DC or ATX Power Source, 8-pin 12V DC power connector, ACPI power management, ATX Power connector, Chassis intrusion indicator, Dual Cooling Zones, Node Manager Support, RoHS, UID

**Broadwell-DE**
- SoC, 4/8/12-Core, 128GB Memory, Dual 10GbE, Dual 10GbE
- 12V DC or ATX Power Source, 8-pin 12V DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, Node Manager Support, SDDC, System level control, UID, WOL

**Broadwell-DE**
- SoC, 8-Core, 128GB Memory
- Dual 10GbE
## Motherboard Solutions

### Xeon D

<table>
<thead>
<tr>
<th>Model</th>
<th>X10SDV-4C-TLN2F</th>
<th>X10SDV-2C-TLN2F</th>
<th>X10SDV-16C-TLN4F</th>
<th>X10SDV-12C-TLN4F</th>
<th>X10SDV-8C-TLN4F</th>
<th>X10SDV-6C-TLN4F</th>
<th>X10SDV-4C-TLN4F</th>
<th>X10SDV-7TP8F</th>
<th>X10SDV-4C-7TP4F</th>
<th>X10SDV-2C-7TP4F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Xeon® Processor D series, Socket FCBGA 1667 supported; -4C: D-1520/1521, 6MB, 4 Core, 45W; -2C: D-1508, 3MB, 2 Core, 25W; with Passive Heatsink</td>
<td>Intel® Xeon® Processor D series, Socket FCBGA 1667 supported; -16C: D-1587, 24MB, 16 Core, 65W; -12C: D-1557, 18MB, 12 Core, 45W; -8C: D-1541, 12MB, 8 Core, 45W; -6C: D-1528, 9MB, 6 Core, 35W; -4C: D-1518, 6MB, 4 Core, 35W; with Passive Heatsink</td>
<td>Intel® Xeon® Processor D-1587 product family; Socket FCBGA1667 supported; CPU TDP support 65W</td>
<td>Intel® Xeon® Processor D-1537, 8 Core; Socket FCBGA 1667 supported; CPU TDP support 35W; -4C: D-1518, 6MB, 4 Core, 35W; -2C: D-1508, 3MB, 2 Core, 25W</td>
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<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
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<tr>
<td><strong>Form Factor</strong></td>
<td>Mini-ITX 6.7” x 6.7”</td>
<td>Mini-ITX 6.7” x 6.7”</td>
<td>Flex ATX 9.0” x 7.25”</td>
<td>Flex ATX 9.0” x 7.25”</td>
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<tr>
<td><strong>Memory</strong></td>
<td>Up to 128GB ECC RDIMM, or 64GB ECC/non-ECC UDIMM, DDR4-2133MHz, in 4 DIMM slots</td>
<td>Up to 128GB ECC RDIMM, or 64GB ECC/non-ECC UDIMM, DDR4-2133MHz, in 4 DIMM slots</td>
<td>Up to 128GB ECC RDIMM, or 64GB ECC/non-ECC UDIMM, DDR4-2133MHz, in 4 DIMM slots</td>
<td>Up to 128GB ECC RDIMM, or 64GB ECC/non-ECC UDIMM, DDR4-2133MHz, in 4 DIMM slots</td>
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<tr>
<td><strong>Expansion Slots</strong></td>
<td>1 PCI-E 3.0 x16, M.2 PCI-E 3.0 x4, M Key 2242/2280</td>
<td>2 PCI-E 3.0 x8, M.2 PCI-E 3.0 x4, M Key 2242/2280/22110; Mini-PCI-E with mSATA support</td>
<td>2 PCI-E 3.0 x8, M.2 PCI-E 3.0 x4, M Key 2242/2280/22110; Mini-PCI-E with mSATA support</td>
<td>2 PCI-E 3.0 x8, M.2 PCI-E 3.0 x4, M Key 2242/2280/22110; Mini-PCI-E with mSATA support</td>
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<tr>
<td><strong>Onboard RAID Controller</strong></td>
<td>SoC controller for 6 SATA3 (6 Gbps) ports; RAID 0,1,5,10 RSTe</td>
<td>SoC controller for 4 SATA3 (6 Gbps) ports; RSTe, Intel® Raid 0,1,5,10; SAS2 and SATA3;</td>
<td>SoC controller for 4 SATA3 (6 Gbps) ports; RSTe, Intel® Raid 0,1,5,10; SAS2 and SATA3;</td>
<td>SoC controller for 4 SATA3 (6 Gbps) ports; RSTe, Intel® Raid 0,1,5,10; SAS2 and SATA3;</td>
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<tr>
<td><strong>Onboard LAN</strong></td>
<td>Dual 10GBase-T with SoC</td>
<td>Dual 10GBase-T with SoC; Dual GbE LAN with Intel® i350-AM2;</td>
<td>Dual 10GBase-T with SoC; Dual GbE LAN with Intel® i350-AM2;</td>
<td>Dual 10GBase-T with SoC; Dual GbE LAN with Intel® i350-AM2;</td>
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<tr>
<td><strong>Onboard Display Ports</strong></td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
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<tr>
<td><strong>USB Ports</strong></td>
<td>4 USB 2.0 ports (4 via headers); 2 USB 3.0 ports (2 rear)</td>
<td>2 USB 3.0 ports (2 rear); 5 USB 2.0 ports ( + 4 via headers + 1 Type A)</td>
<td>2 USB 3.0 ports (2 rear); 5 USB 2.0 ports ( + 4 via headers + 1 Type A)</td>
<td>2 USB 3.0 ports (2 rear); 5 USB 2.0 ports ( + 4 via headers + 1 Type A)</td>
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<tr>
<td><strong>Other Onboard I/O Devices</strong></td>
<td>1 Port SuperDOM, TPM Header, 1 COM Ports (1 header), GPIO and SMbus headers</td>
<td>2 ports SuperDOM, TPM 2.0 Header, 1 COM Ports (1 header), GPIO and SMbus headers</td>
<td>2 ports SuperDOM, TPM 2.0 Header, 1 COM Ports (1 header), GPIO and SMbus headers</td>
<td>2 ports SuperDOM, TPM 2.0 Header, 1 COM Ports (1 header), GPIO and SMbus headers</td>
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<tr>
<td><strong>Manageability</strong></td>
<td>Redfish 1.0 + iPMI 2.0 + KVM with dedicated LAN, NMI, SSM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Redfish 1.0 + iPMI 2.0 + KVM with dedicated LAN, NMI, SSM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Redfish 1.0 + iPMI 2.0 + KVM with dedicated LAN, NMI, SSM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Redfish 1.0 + iPMI 2.0 + KVM with dedicated LAN, NMI, SSM, SUM, SuperDoctor® 5, Watchdog</td>
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<tr>
<td><strong>Health Monitoring</strong></td>
<td>+1.8V, +12V, +3.3V, +5V, Chassis intrusion header, Monitors for CPU Cores, System level control; -2C: VBAT</td>
<td>+16C/12C/4C: +1.8V,+12V,+3.3V,+5V, Chassis intrusion header, Monitors for CPU Cores, System level control -4C: +12V,+3.3V,+5V, 1.2V (VDIMM), Chassis intrusion header, System level control -6C: +1.8V,+12V,+3.3V,+5V, 1.2V (VDIMM), 4-fan status, Chassis intrusion header, Monitors for CPU Cores, Supports system management utility, System level control</td>
<td>+1.8V, +12V, +3.3V, +5V, Chassis intrusion header, Monitors for CPU Cores, System level control, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, Chassis intrusion header, Monitors for CPU Cores, System level control, VBAT</td>
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<td><strong>Thermal Control</strong></td>
<td>-4C: 3x 4-pin fan headers (up to 3 fans), 3 fans with tachometer monitoring, Dual Cooling Zone, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>-2C: 4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring, Dual Cooling Zone, Low noise fan speed control, Pulse Width Modulated (PWM) fan connectors, Status monitoring for on/off control, Status monitoring for speed control</td>
<td>-12C/4C: 4 fans with tachometer monitoring</td>
<td>6-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
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<tr>
<td><strong>Other Features</strong></td>
<td>12V DC or ATX Power Source, Chassis intrusion detection, Chassis intrusion header, RoHS</td>
<td>12V DC or ATX Power Source, Chassis intrusion detection, Chassis intrusion header, RoHS</td>
<td>12V DC or ATX Power Source, Chassis intrusion detection, Chassis intrusion header, RoHS</td>
<td>12V DC or ATX Power Source, Chassis intrusion detection, Chassis intrusion header, RoHS</td>
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<tr>
<td>MODEL</td>
<td>X105DV-TP8F</td>
<td>X105DV-2C-TP8F</td>
<td>X105DV-4C-TP4F</td>
<td>X105DV-12C-TLN4F+</td>
<td>X105DV-16C-TLN4F+</td>
<td>X11SRM-F</td>
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<tr>
<td><strong>Processor</strong></td>
<td>Intel® Xeon® Processor D-1518, 4 Core; Socket FCBDGA 1667 supported; CPU TDP support 35W; 2C: D-1508, 3MB, 2 Core, 25W</td>
<td>Intel® Xeon® Processor D-1518, 4 Core; Socket FCBDGA 1667 supported; CPU TDP support 35W 2C: D-1508, 3MB, 2 Core, 25W</td>
<td>Intel® Xeon Processor D series, Socket FCBDGA 1667 supported; 16C: D-1587, 24MB, 16 Core, 65W; 12C: D-1557, 18MB, 12 Core, 45W; 8C: D-1537, 12MB, 8 Core, 35W; with Passive Heatsink</td>
<td>Intel® Xeon® Processor W Family, Single Socket R4 (LGA 2066) supported, CPU TDP support Up to 140W</td>
<td>Intel® C422</td>
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<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
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<td>System on Chip</td>
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<tr>
<td><strong>Form Factor</strong></td>
<td>Flex ATX 9.0” x 7.25”</td>
<td>Flex ATX 9.0” x 7.25”</td>
<td>Mini-ITX 6.7” x 6.7”</td>
<td>Mini-ITX 6.7” x 6.7”</td>
<td>Mini-ITX 6.7” x 6.7”</td>
<td>Mini-ITX 6.7” x 6.7”</td>
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<tr>
<td><strong>Memory Capacity &amp; Slots</strong></td>
<td>Up to 128GB ECC RDIMM, or 64GB ECC/non-ECC UDIMM, DDR4-2133MHz, in 4 DIMM slots</td>
<td>Up to 128GB ECC RDIMM, or 64GB ECC/non-ECC UDIMM, DDR4-2133MHz, in 4 DIMM slots</td>
<td>Up to 128GB ECC RDIMM, or 64GB ECC/non-ECC UDIMM, DDR4-2133MHz, in 4 DIMM slots</td>
<td>Up to 128GB ECC RDIMM, or 64GB ECC/non-ECC UDIMM, DDR4-2133MHz, in 4 DIMM slots</td>
<td>Up to 128GB ECC RDIMM, or 64GB ECC/non-ECC UDIMM, DDR4-2133MHz, in 4 DIMM slots</td>
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<tr>
<td><strong>Expansion Slots</strong></td>
<td>2 PCI-E 3.0 x8, M.2 PCI-E 3.0 x4, M Key Key 2242/2280/22110; Mini-PCI-E with mSATA support</td>
<td>2 PCI-E 3.0 x8</td>
<td>1 PCI-E 3.0 x16, M.2 PCI-E 3.0 x4, M Key 2242/2280/22110; Mini-PCI-E with mSATA support</td>
<td>1 PCI-E 3.0 x16, M.2 PCI-E 3.0 x4, M Key 2242/2280/22110; Mini-PCI-E with mSATA support</td>
<td>1 PCI-E 3.0 x16, M.2 PCI-E 3.0 x4, M.2 Form Factor: 2280, 4 PCI-E 3.0 NVMeExpress x4</td>
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<tr>
<td><strong>Onboard RAID Controller</strong></td>
<td>SoC controller for 4 SATA3 (6 Gbps) ports; RSTe, Intel® Raid 0,1,5,10</td>
<td>Dual 10Gbe SFP+ from SoC; Dual GbE LAN with Intel® i350-AM4</td>
<td>Dual 10Gbe SFP+ from SoC; Dual GbE LAN with Intel® i350-AM4</td>
<td>Dual 10Gbe SFP+ from SoC; Dual GbE LAN with Intel® i350-AM4</td>
<td>Intel® C422 controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
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<tr>
<td><strong>Onboard LAN</strong></td>
<td>Dual 10GbE SFP+ from SoC; Dual GbE LAN with Intel® i350-AM4</td>
<td>Dual 10GbE SFP+ from SoC; Dual GbE LAN with Intel® i350-AM4</td>
<td>Dual 10GbE SFP+ from SoC; Dual GbE LAN with Intel® i350-AM4</td>
<td>Dual 10GbE SFP+ from SoC; Dual GbE LAN with Intel® i350-AM4</td>
<td>Dual LAN with Intel® I210 Gigabit Ethernet Controller</td>
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<tr>
<td><strong>Onboard VGA/Display Ports</strong></td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 VGA port(s), 1 Aspeed AST2500 BMC</td>
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<tr>
<td><strong>USB Ports</strong></td>
<td>2 USB 3.0 ports (2 rear), 5 USB 2.0 ports (+ 4 via headers + 1 Type A)</td>
<td>2 USB 3.0 ports (2 rear), 5 USB 2.0 ports (+ 4 via headers + 1 Type A)</td>
<td>2 USB 2.0 ports (2 via headers)</td>
<td>2 USB 2.0 ports (2 via headers)</td>
<td>2 USB 2.0 ports (2 rear)</td>
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<tr>
<td><strong>Other Onboard I/O Devices</strong></td>
<td>2 ports SuperDOM TPM 2.0 Header 1 COM Ports (1 header) GPIO and SMIbus headers</td>
<td>2 ports SuperDOM TPM 2.0 Header 1 COM Ports (1 header) GPIO and SMIbus headers</td>
<td>1 Port SuperDOM, TPM Header, 1 COM Port (1 header), GPIO and SMIbus headers</td>
<td>1 Port SuperDOM, TPM Header, 1 COM Port (1 header), GPIO and SMIbus headers</td>
<td>TPM Header, 2 COM Ports (1 rear, 1 header)</td>
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<tr>
<td><strong>Manageability</strong></td>
<td>Redfish 1.0 + IPMI 2.0 + KVM with dedicated LAN, AMT, NMI, SSM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Redfish 1.0 + IPMI 2.0 + KVM with dedicated LAN, AMT, NMI, SSM, SUM, SuperDoctor® 5, Watchdog</td>
<td>+1.8V, +12V, +3.3V, +5V, 1.2V (VDIMM), 6 -fan status, Chassis intrusion header, Supports system management utility, System level control, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, 1.2V (VDIMM), 6 -fan status, Chassis intrusion header, Supports system management utility, System level control, VBAT</td>
<td>IPMI2.0, KVM with dedicated LAN, SUM, SuperDoctor® 5, Watchdog</td>
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<tr>
<td><strong>Health Monitoring</strong></td>
<td>+1.8V, +12V, +3.3V, +5V, 1.2V (VDIMM), 6 -fan status, Chassis intrusion header, Supports system management utility, System level control, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, 1.2V (VDIMM), 6 -fan status, Chassis intrusion header, Supports system management utility, System level control, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, 1.2V (VDIMM), 6 -fan status, Chassis intrusion header, Supports system management utility, System level control, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, 6 -fan status, Chassis intrusion header, HT, Monitors CPU voltages, System temperature, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, 6 -fan status, Chassis intrusion header, HT, Monitors CPU voltages, System temperature, VBAT</td>
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<tr>
<td><strong>Thermal Control</strong></td>
<td>6-4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>6-4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>6-4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>6-4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>6x 4-pin fan headers (up to 6 fans)</td>
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<tr>
<td><strong>Other Features</strong></td>
<td>8-pin 12V DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, Node Manager Support, SDDC, System level control, UID, WOL</td>
<td>8-pin 12V DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, Node Manager Support, SDDC, System level control, UID, WOL</td>
<td>8-pin 12V DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, Node Manager Support, SDDC, System level control, UID, WOL</td>
<td>8-pin 12V DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, Node Manager Support, SDDC, System level control, UID, WOL</td>
<td>ACPI power management, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Rohs, UID</td>
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**Xeon® D**
- SoC, 2/4 Core, 128GB Memory, 2x 10GbE SFP+, 6x GbE

**Xeon® D**
- SoC, 2/4 Core, 128GB Memory, 2x 10GbE SFP+, 2x GbE

**Xeon® D**
- SoC, 8/12/16 Core, 128GB Memory, 2x 10GbE SFP+, 2x GbE

**Xeon-W**
<table>
<thead>
<tr>
<th><strong>MODEL</strong></th>
<th>X11SSV-M4</th>
<th>X11SSV-M4F</th>
<th>X11SSH-F</th>
<th>X11SSH-LN4F</th>
<th>X11SAE</th>
<th>X11SAE-F</th>
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</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Xeon® processor E3-1513 v5</td>
<td>Intel® Xeon® processor E3-1585 v5</td>
<td>Intel® Xeon® processor E3-1200 v6/v5</td>
<td>Intel® Xeon® processor E3-1200 v6/v5</td>
<td>Intel® Xeon® processor E3-1200 v6/v5</td>
<td>Intel® Xeon® processor E3-1200 v6/v5</td>
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<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>Intel® CM236</td>
<td>Intel® CM236</td>
<td>Intel® C236</td>
<td>Intel® C236</td>
<td>Intel® C236</td>
<td>Intel® C236</td>
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<tr>
<td><strong>Form Factor</strong></td>
<td>Mini-ITX</td>
<td>Mini-ITX</td>
<td>Mini-ITX</td>
<td>ATX</td>
<td>ATX</td>
<td>ATX</td>
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<tr>
<td><strong>Memory Capacity &amp; Slots</strong></td>
<td>Up to 32GB Unbuffered ECC/non-ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots</td>
<td>Up to 32GB Unbuffered ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots</td>
<td>64GB Unbuffered ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
<td>64GB Unbuffered ECC/Non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
<td>64GB Unbuffered ECC/Non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
<td>64GB Unbuffered ECC/Non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
</tr>
<tr>
<td><strong>Onboard RAID Controller</strong></td>
<td>Single LAN with Intel® Ethernet Controller I210-AT</td>
<td>Dual LAN with Intel® Ethernet Controller I350-AM2</td>
<td>IPMI Shared LAN with I210-AT</td>
<td>IPMI Shared LAN with I210-AT</td>
<td>IPMI Shared LAN with I210-AT</td>
<td>IPMI Shared LAN with I210-AT</td>
</tr>
<tr>
<td><strong>Onboard VGA/Display Ports</strong></td>
<td>1 HDMI, 1 DP (DisplayPort), 1 DVI - I 1 Intel® Iris Pro Graphics PS80</td>
<td>1 DVI - I 1 Aspeed AST2400 BMC</td>
<td>1 VGA (from Aspeed AST2400 BMC)</td>
<td>1 VGA (from Aspeed AST2400 BMC)</td>
<td>1 VGA (from Aspeed AST2400 BMC)</td>
<td>1 VGA (from Aspeed AST2400 BMC)</td>
</tr>
<tr>
<td><strong>USB Ports</strong></td>
<td>5 USB 2.0 ports (+ 4 via headers + 1 Type A) 4 USB 3.0 ports (4 rear)</td>
<td>5 USB 2.0 ports (+ 4 via headers + 1 Type A) 4 USB 3.0 ports (4 rear)</td>
<td>5 USB 3.0 ports (2 rear + 2 via header+ 1 Type A) 6 USB 2.0 ports (2 rear + 4 via header)</td>
<td>5 USB 3.0 ports (2 rear + 2 via header+ 1 Type A) 6 USB 2.0 ports (2 rear + 4 via header)</td>
<td>6 USB 3.0 ports (2 rear + 4 via header) 2 USB 3.1 ports (2 rear)</td>
<td>6 USB 3.0 ports (2 rear + 4 via header) 2 USB 3.1 ports (2 rear)</td>
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<tr>
<td><strong>Health Monitoring</strong></td>
<td>+12V, +3.3V, +5V, +5V standby, 3 -fan status, Chassis intrusion header, Monitors CPU voltages</td>
<td>+12V, +3.3V, +5V, +5V standby, 1.05V (PCH), 3 -fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, Chassis intrusion header, Monitors CPU voltages, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, Chassis intrusion header, Monitors CPU voltages, VBAT</td>
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<tr>
<td><strong>Thermal Control</strong></td>
<td>3x 4-pin fan headers (up to 3 fans), Fan speed control, Pulse Width Modulated (PWM) fan controllers, PWM fan speed control, Thermal control tachometer fan controllers</td>
<td>3x 4-pin fan headers (up to 3 fans), Fan speed control, Pulse Width Modulated (PWM) fan controllers, PWM fan speed control, Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan controllers</td>
<td>5 4-pin, Fan speed control, Overheat LED indication, Thermal control tachometer fan controllers</td>
<td>5 4-pin, Fan speed control, Overheat LED indication</td>
<td>5 4-pin, Fan speed control, Overheat LED indication</td>
<td>5 4-pin, Fan speed control, Overheat LED indication</td>
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<tr>
<td><strong>Other Features</strong></td>
<td>12V DC or ATX Power Source, 8-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, M.2 NGFF connector, RoHS, System level control, WOL</td>
<td>Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, VHD, WOL, M.2 NGFF connector</td>
<td>Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, M.2 NGFF connector</td>
<td>Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, M.2 NGFF connector</td>
<td>Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, M.2 NGFF connector</td>
<td>Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, M.2 NGFF connector</td>
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</table>
### Processor
- **Intel® 4th Generation Core™ i7/i5/i3 series**, Pentium® series; Socket 1150 supported; CPU TDP support up to 84W TDP
- **Intel® Xeon® processor E3-1200 v4/v3 series**, Intel® 4th Generation Core™ i3 series, Intel® Pentium®, Celeron®; Socket LGA 1150 supported

### Chipset/System Bus
- **Mini-PCI-E with mSATA support**
- **Intel® 4th Generation Core™**

### Memory
- Up to 16GB DDR3 1600MHz Non ECC
- Up to 32GB Unbuffered non-ECC, DDR3-1600MHz in 4 DIMM slots
- DDR3-1600MHz in 4 DIMM slots
- Intel® H81/Q87 controller for 2 SATA3 (6 Gbps) ports; 0,1,5,10
- Intel® Q87 Express Chipset
- Intel® 4th Generation Core™

### Expansion Slots
- 1 PCI-E 2.0 x16 (3.0 for -Q)
- Mini-PCI-E with mSATA support
- 1 PCI-E 3.0 x8 (in x16 slot)
- 1 PCI-E 2.0 x4, 1 PCI-E 2.0 x1
- 1 PCI-E 3.0 x8 (in x16 slot)
- 1 PCI-E 2.0 x8 (in x8 slot)
- 1 PCI-E 2.0 x4 (in x8 slot)

### Onboard RAID Controller
- Intel® Q87 controller for 5 SATA3 (6GBps) ports; 0,1,5,10
- Intel® Q87 Express Chipset
- Intel® C226 controller for 6 SATA3 (6 Gbps) ports; RAID 0,1,5,10 ASMedia SM208
- Intel® 4th Generation Core™

### Onboard LAN
- Dual LAN with Intel® i217LM & i210AT
- Dual LAN with Intel® Ethernet Controller i210AT
- Single LAN with Intel® Ethernet Controller i217
- Single LAN with Intel® Ethernet Controller i210

### Onboard VGA/Display Ports
- 1 HDMI, 1 DP (DisplayPort), 1 DVI-I
- Intel® HD 4600 Graphics, 2 Independent Displays
- 1 HDMI, 1 DP (DisplayPort), DIV-D, VGA
- Intel® HD 4600 Graphics, 3 Independent Displays
- Asian S52400 BMC

### USB Ports
- 2 USB 3.0 ports (2 rear + 1)
- 5 USB 2.0 ports (2 rear + 2 via headers + 1 Type A)
- 4 USB 3.0 ports (2 rear + 1 via header + 1 Type A)
- 6 USB 3.0 ports (2 rear + 4 via headers)
- 4 USB 3.0 ports (2 rear + 1 via header + 1 Type A; 6 USB 2.0 ports (2 rear + 4 via headers)

### Other Onboard I/O Devices
- 1 SATAB DOM power connector, AL888S HD Audio Font panel header, 5 COM ports (1 with RS422/485), TPM 1.2 Header
- 1 SATAB DOM power connector, 7.1 HD Audio, 4 COM port headers (1 with RS422/485), PS/2 Combo mouse and keyboard; TPM 1.2 Header
- 1 SATAB DOM power connector, 7.1 HD Audio, 4 COM port headers (1 with RS422/485), PS/2 Combo mouse and keyboard; TPM 1.2 Header

### Manageability
- SuperDoctor 5, Watchdog
- TPM 1.2 Header
- SuperDoctor 5, Watchdog, AMT 9.0, vPro

### Health Monitoring
- Monitors CPU voltages, +1.8V, +12V, +3.3V, +5V, +3.3V Standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control

### Thermal Control
- 3-4 pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors
- Overheat LED indication, fan speed control, Thermal control tachometer fan connectors
- Overheat LED indication, fan speed control, 5x 4-pin fan headers with tachometer monitoring
- 5x 4-pin, Fan speed control, Overheat LED indication

### Other Features
- 4-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, Adaptive Thermal Monitor & CPU thermal trip support for processor protection, System level control, WOL, 0°C - 60°C operating temperature
- ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, Adaptive Thermal Monitor & CPU thermal trip support for processor protection, System level control, WOL, 0°C - 60°C operating temperature
- ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, WOL

### Form Factor
- Mini-ITX 6.7" x 6.7"
- MicroATX 9.6" x 9.6"
- ATX 12" x 9.6"
<table>
<thead>
<tr>
<th>MODEL</th>
<th>X10DRI</th>
<th>X10DRH-C(T)</th>
<th>X10DRH-i(T)</th>
<th>X10DAi</th>
<th>X10DRC-T4+/LN4+</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Xeon® Processor E5-2600 v4 (Broadwell)/v3 (Haswell) product family supported; QPI up to 9.6GT/s; CPU TDP support up to 145W</td>
<td>Intel® Xeon® Processor E5-2600 v4 (Broadwell)/v3 (Haswell) product family supported; QPI up to 9.6GT/s; CPU TDP support up to 145W</td>
<td>Intel® Xeon® Processor E5-2600 v4 (Broadwell)/v3 (Haswell) product family supported; QPI up to 9.6GT/s; CPU TDP support up to 160W</td>
<td>Intel® Xeon® Processor E5-2600 v4 (Broadwell)/v3 (Haswell) product family supported; QPI up to 9.6GT/s; CPU TDP support up to 145W</td>
<td>Intel® Xeon® Processor E5-2600 v4 (Broadwell)/v3 (Haswell) product family supported; QPI up to 9.6GT/s; CPU TDP support up to 145W</td>
</tr>
<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>Intel® C612 Chipset</td>
<td>Intel® C612 controller for 6 SATA3 (6 Gbps) ports; RAID 0,1,5,10; LSI 3108 HW with 2G Cache controller for 8 SAS3 (12Gbps) ports; RAID 0,1,5,6,10,50,60 (-C SKU only)</td>
<td>Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10; -T: Quad LAN with Intel® X540 10GbE Controller</td>
<td>Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10; -T: Quad LAN with Intel® X540 10GbE Controller</td>
<td>Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10; -T: Quad LAN with Intel® X540 10GbE Controller</td>
</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>E. ATX 12&quot; x 13&quot;</td>
<td>E. E. ATX 13.68&quot; x 13&quot;</td>
<td>Up to 768GB Registered ECC RDIMM, DDR4-2400MHz; Up to 2TB 3DS ECC RDIMM, DDR4-2400MHz, in 24 DIMM slots</td>
<td>Up to 768GB Registered ECC RDIMM, DDR4-2400MHz; Up to 2TB 3DS ECC RDIMM, DDR4-2400MHz, in 16 DIMM slots</td>
<td>Up to 768GB Registered ECC RDIMM, DDR4-2400MHz; Up to 2TB 3DS ECC RDIMM, DDR4-2400MHz, in 16 DIMM slots</td>
</tr>
<tr>
<td><strong>Memory Capacity &amp; Slots</strong></td>
<td>Up to 1TB Registered ECC RDIMM, DDR4-2133MHz; Up to 2TB 3DS ECC RDIMM, in 16 DIMM slots; Up to 2TB 3DS ECC RDIMM, in 16 DIMM slots</td>
<td>Up to 1TB Registered ECC RDIMM, DDR4-2133MHz; Up to 2TB 3DS ECC RDIMM, in 16 DIMM slots</td>
<td>Up to 1TB Registered ECC RDIMM, DDR4-2133MHz; Up to 2TB 3DS ECC RDIMM, in 16 DIMM slots</td>
<td>Up to 1TB Registered ECC RDIMM, DDR4-2133MHz; Up to 2TB 3DS ECC RDIMM, in 16 DIMM slots</td>
<td>Up to 1TB Registered ECC RDIMM, DDR4-2133MHz; Up to 2TB 3DS ECC RDIMM, in 16 DIMM slots</td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>1 PCI-E 3.0 x16, 6 PCI-E 3.0 x8</td>
<td>1 PCI-E 3.0 x16, 6 PCI-E 3.0 x8</td>
<td>1 PCI-E 3.0 x16, 6 PCI-E 3.0 x8</td>
<td>1 PCI-E 3.0 x16, 6 PCI-E 3.0 x8</td>
<td>1 PCI-E 3.0 x16, 6 PCI-E 3.0 x8</td>
</tr>
<tr>
<td><strong>Onboard RAID Controller</strong></td>
<td>Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10; -T: Dual LAN with Intel® X540 10GbE Controller</td>
<td>Intel® C612 controller for 6 SATA3 (6 Gbps) ports; RAID 0,1,5,10; LSI 3108 HW with 2G Cache controller for 8 SAS3 (12Gbps) ports; RAID 0,1,5,6,10,50,60 (-C SKU only)</td>
<td>Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10; -T: Dual LAN with Intel® X540 10GbE Controller</td>
<td>Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10; -T: Dual LAN with Intel® X540 10GbE Controller</td>
<td>Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10; -T: Dual LAN with Intel® X540 10GbE Controller</td>
</tr>
<tr>
<td><strong>Onboard LAN</strong></td>
<td>Dual LAN with Intel® i350 Gigabit Ethernet Controllers; -T: Dual LAN with Intel® i540 Gigabit Ethernet Controllers</td>
<td>Dual LAN with Intel® i350 Gigabit Ethernet Controllers; -T: Dual LAN with Intel® i540 Gigabit Ethernet Controllers</td>
<td>Dual LAN with Intel® i210 Gigabit Ethernet Controller</td>
<td>Dual LAN with Intel® i210 Gigabit Ethernet Controller</td>
<td>Dual LAN with Intel® i350 Gigabit Ethernet Controllers</td>
</tr>
<tr>
<td><strong>Onboard VGA/Display Ports</strong></td>
<td>AST2400 VGA</td>
<td>N/A</td>
<td>AST2400 VGA</td>
<td>N/A</td>
<td>AST2400 VGA</td>
</tr>
<tr>
<td><strong>USB Ports</strong></td>
<td>5 USB 3.0 ports (2 rear + 2 via header + 1 Type A)</td>
<td>5 USB 3.0 ports (2 rear + 2 via header + 1 Type A)</td>
<td>6 USB 3.0 ports (2 rear + 2 via headers)</td>
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<td>5 USB 3.0 ports (2 rear + 2 header + 1 Type A)</td>
</tr>
<tr>
<td><strong>Other Onboard I/O Devices</strong></td>
<td>2 ports SuperDOM, 2 COM Ports (1 rear, 1 header)</td>
<td>2 ports SuperDOM, 2 COM Ports (1 rear, 1 header)</td>
<td>2 ports SuperDOM, 7.1 HD Audio, TPM module header</td>
<td>2 ports SuperDOM, 7.1 HD Audio, TPM module header</td>
<td>2 ports SuperDOM, 7.1 HD Audio, TPM module header</td>
</tr>
<tr>
<td><strong>Manageability</strong></td>
<td>IPMI 2.0 + KVM with dedicated LAN, Intel® Node Manager, SPM, SUM, SuperDoctor’ 5, Watchdog</td>
<td>NMI</td>
<td>IPMI 2.0 + KVM with dedicated LAN, Intel® Node Manager, SPM, SUM, SuperDoctor’ 5, Watchdog</td>
<td>NMI</td>
<td>IPMI 2.0 + KVM with dedicated LAN, Intel® Node Manager, SPM, SUM, SuperDoctor’ 5, Watchdog</td>
</tr>
<tr>
<td><strong>Health Monitoring</strong></td>
<td>+12V, +3.3V, +5V, +5V Standby, 3.3v standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility</td>
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<tr>
<td><strong>Thermal Control</strong></td>
<td>8 4-pin, Overheat LED indication, PWM fan speed control, System level control</td>
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<tr>
<td><strong>Other Features</strong></td>
<td>ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Node Manager Support, SDCC, WOL</td>
<td>ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Node Manager Support, SDDC, WOL</td>
<td>ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Node Manager Support, SDDC, WOL</td>
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</tr>
<tr>
<td>MODEL</td>
<td>X10DRL-C(T)</td>
<td>X10DRL-i</td>
<td>X10DRW-i X10DRW-iT</td>
<td>X10DDW-i X10DDW-iN</td>
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<td>Processor</td>
<td>Intel® Xeon® Processor E5-2600 v4 (Broadwell)/v3 (Haswell) product family supported; QPI up to 9.6GT/s; CPU TDP support up to 145W</td>
<td>Intel® C612 Chipset</td>
<td>Proprietary 12.3&quot; x 13&quot;</td>
<td>Proprietary 12.8&quot; x 13.4&quot;</td>
<td></td>
</tr>
<tr>
<td>Chipset/System Bus</td>
<td>ATX 12&quot; x 10&quot;</td>
<td>Intel® C612 Chipset</td>
<td>Intel® C612 controller for 6 SATA3 (6 Gbps) ports; RAID 0,1,5,10; SAS3 LSI® 3108 HW with 2G Cache controller for 8 SAS3 (12Gbps) ports; RAID 0,1,5,6,10,50,60</td>
<td>Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
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<tr>
<td>Form Factor</td>
<td>Proprietary 12.3&quot; x 13&quot;</td>
<td>Intel® C612 controller for 6 SATA3 (6 Gbps) ports; RAID 0,1,5,10; SAS3 LSI® 3108 HW with 2G Cache controller for 8 SAS3 (12Gbps) ports; RAID 0,1,5,6,10,50,60</td>
<td>Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Proprietary 12.8&quot; x 13.4&quot;</td>
<td></td>
</tr>
<tr>
<td>Memory Capacity &amp; Slots</td>
<td>512GB Registered ECC RDIMM, DDR4-2133MHz; Up to 1TB 3DS ECC LRDIMM, in 8 DIMM slots</td>
<td>Intel® C612 controller for 6 SATA3 (6 Gbps) ports; RAID 0,1,5,10; SAS3 LSI® 3108 HW with 2G Cache controller for 8 SAS3 (12Gbps) ports; RAID 0,1,5,6,10,50,60</td>
<td>Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Proprietary 12.8&quot; x 13.4&quot;</td>
<td></td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>2 PCI-E 3.0 x8 1 PCI-E 3.0 x16</td>
<td>Proprietary 12.3&quot; x 13&quot;</td>
<td>Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Proprietary 12.8&quot; x 13.4&quot;</td>
<td></td>
</tr>
<tr>
<td>Onboard RAID Controller</td>
<td>Dual LAN with Intel® I210 Gigabit Ethernet Controller</td>
<td>Dual LAN with Intel® I210 Gigabit Ethernet Controller</td>
<td>Dual LAN with Intel® I350 Gigabit Ethernet Controllers</td>
<td>Dual LAN with Intel® I350 Gigabit Ethernet Controllers</td>
<td></td>
</tr>
<tr>
<td>Onboard LAN</td>
<td>Dual LAN with Intel® X540 10GBase-T Ethernet Controller</td>
<td>Dual LAN with Intel® X540 10GBase-T Ethernet Controller</td>
<td>Dual LAN with Intel® X350 Gigabit Ethernet Controllers</td>
<td>Dual LAN with Intel® X350 Gigabit Ethernet Controllers</td>
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<tr>
<td>Onboard VGA/Display Ports</td>
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<td>USB Ports</td>
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<td>6 USB 3.0 ports (4 rear + 2 via header) 4 USB 2.0 ports (2 rear + 2 via headers)</td>
<td>3 USB 3.0 ports (2 rear + 1 Type A) 4 USB 2.0 ports (2 rear + 2 via headers)</td>
<td></td>
</tr>
<tr>
<td>Other Onboard I/O Devices</td>
<td>2 ports SuperDOM 1 SATA DOM power connector 1 COM port (1 header) SuperCAP connector (-C SKU only)</td>
<td>2 ports SuperDOM 1 SATA DOM power connector 2 COM ports (1 rear, 1 header)</td>
<td>2 ports SuperDOM TPM module header 1 COM port (1 header)</td>
<td>2 ports SuperDOM TPM module header 1 COM port (1 header)</td>
<td></td>
</tr>
<tr>
<td>Manageability</td>
<td>IPMI 2.0 + KVM with dedicated LAN, Intel® Node Manager, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td>IPMI 2.0 + KVM with dedicated LAN, Intel® Node Manager, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td>IPMI 2.0 + KVM with dedicated LAN, Intel® Node Manager, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td>IPMI 2.0 + KVM with dedicated LAN, Intel® Node Manager, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td></td>
</tr>
<tr>
<td>Health Monitoring</td>
<td>+12V, +3.3V, +5V, +5V standby, 8 -fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility</td>
<td>+12V, +3.3V, +5V, +5V standby, 3.3v standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility</td>
<td>+12V, +3.3V, +5V, +5V standby, 3.3v standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility</td>
<td>+12V, +3.3V, +5V, +5V standby, 3.3v standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility</td>
<td></td>
</tr>
<tr>
<td>Thermal Control</td>
<td>8-4-pin, Overheat LED indication, PWM fan speed control</td>
<td>8-4-pin, Overheat LED indication, PWM fan speed control, System level control</td>
<td>8-4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>8-4-pin, Overheat LED indication, PWM fan speed control, System level control</td>
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<tr>
<td>Other Features</td>
<td>ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Node Manager Support, SDDC, WOL, UID</td>
<td>ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Node Manager Support, SDDC, WOL, UID</td>
<td>ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Node Manager Support, SDDC, WOL, UID</td>
<td>ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Node Manager Support, SDDC, WOL, UID</td>
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</tbody>
</table>
### Motherboard Solutions

#### MODEL | X10SRW-F | X10SRI-F | X10SRL-F | X10SRH-CLN4F
---|---|---|---|---
**Processor** | Intel® Xeon® Processor E5-2600/1600 v4/v3 (Haswell) product families supported; CPU TDP support Up to 145W | Intel® Xeon® Processor E5-2600/1600 v4/v3 (Haswell) product families supported; CPU TDP support Up to 145W | Intel® Xeon® Processor E5-2600/1600 v4/v3 (Haswell) product families supported; CPU TDP support Up to 145W | Intel® Xeon® Processor E5-2600/1600 v4/v3 (Haswell) product families supported; CPU TDP support Up to 145W
**Chipset/System Bus** | Intel® C612 Chipset | Intel® C612 Chipset | Intel® C612 Chipset | Intel® C612 Chipset
**Form Factor** | Proprietary 8” x 13” | ATX 12” x 9.6” | ATX 12” x 9.6” | ATX 12” x 9.6”
**Memory**
- **Capacity & Slots** | DDR4-2133MHz in 8 DIMM slots | 1 x PCI-E x16 (in WIO slot)
2 x PCI-E x 8 (in x16 slot) | 1 x PCI-E x16
2 x PCI-E x 8 (in x16 slot) | 1 x PCI-E x16
2 x PCI-E x 8 (in x16 slot) | 1 x PCI-E x16
2 x PCI-E x 8 (in x16 slot) | 1 x PCI-E x16
2 x PCI-E x 8 (in x16 slot) | 1 x PCI-E x16
2 x PCI-E x 8 (in x16 slot) | 1 x PCI-E x16
2 x PCI-E x 8 (in x16 slot) | 1 x PCI-E x16
2 x PCI-E x 8 (in x16 slot) | 1 x PCI-E x16
2 x PCI-E x 8 (in x16 slot) | 1 x PCI-E x16
2 x PCI-E x 8 (in x16 slot) | 1 x PCI-E x16
**Expansion Slots** | 1 PCI-E 3.0 x16 | 1 PCI-E 3.0 x16 | 1 PCI-E 3.0 x16 | 1 PCI-E 3.0 x16
2 PCI-E 3.0 x8 | 2 PCI-E 3.0 x8 | 2 PCI-E 3.0 x8 | 2 PCI-E 3.0 x8
1 PCI-E 2.0 x4 (in x8 slot) | 1 PCI-E 2.0 x4 (in x8 slot) | 1 PCI-E 2.0 x4 (in x8 slot) | 1 PCI-E 2.0 x4 (in x8 slot)
1 PCI-E 2.0 x2 (in x8 slot) | 1 PCI-E 2.0 x2 (in x8 slot) | 1 PCI-E 2.0 x2 (in x8 slot) | 1 PCI-E 2.0 x2 (in x8 slot)
**Onboard RAID Controller** | Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10 | Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10 | Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10 | Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,10
**Onboard LAN** | Dual LAN with Intel® Ethernet Controller i350-AM2 | Dual LAN with Intel® Ethernet Controller i350-AM2 | Dual LAN with Intel® Ethernet Controller i350-AM2 | Dual LAN with Intel® Ethernet Controller i210
**Onboard VGA/Display Ports** | AST2400 VGA* | AST2400 VGA | AST2400 VGA | AST2400 VGA
**USB Ports** | 4 USB 3.0 ports (2 rear + 1 via header + 1 Type A) 6 USB 2.0 ports (6 via headers) | 4 USB 3.0 ports (2 rear + 1 via header + 1 Type A) 8 USB 2.0 ports (2 rear + 6 via headers) | 4 USB 3.0 ports (2 rear + 1 via header + 1 Type A) 8 USB 2.0 ports (2 rear + 6 via headers) | 4 USB 3.0 ports (2 rear + 1 via header + 1 Type A) 8 USB 2.0 ports (2 rear + 6 via headers)
**Other Onboard I/O Devices** | 2 ports SuperDOM 2 fast UART 16550 serial TPM module header 2 COM Ports (1 rear, 1 header) 1 eUSB header | 2 ports SuperDOM 2 fast UART 16550 serial TPM module header 2 COM Ports (1 rear, 1 header) | 2 ports SuperDOM 2 fast UART 16550 serial TPM module header 2 COM Ports (1 rear, 1 header) | 2 ports SuperDOM 2 fast UART 16550 serial TPM module header 2 COM Ports (1 rear, 1 header)
**Manageability** | IPMI 2.0 + KVM with dedicated LAN, Intel® Node Manager, NMI, SP, SUM, SuperDoctor® 5, Watchdog | IPMI 2.0 + KVM with dedicated LAN, Intel® Node Manager, NMI, SP, SUM, SuperDoctor® 5, Watchdog | IPMI 2.0 + KVM with dedicated LAN, Intel® Node Manager, NMI, SP, SUM, SuperDoctor® 5, Watchdog | IPMI 2.0 + KVM with dedicated LAN, Intel® Node Manager, NMI, SP, SUM, SuperDoctor® 5, Watchdog
**Health Monitoring** | +12V, +3.3V, +5V, +5V standby, 8 -fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility | +12V, +3.3V, +5V, +5V Standby, 6 -fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility | +12V, +3.3V, +5V, +5V Standby, 6 -fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility | +12V, +3.3V, +5V, +5V Standby, 6 -fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility
**Thermal Control** | 5 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, Thermal control tachometer fan connectors | 6 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control | 6 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control | 6 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control
**Other Features** | ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Node Manager Support, SDDC, UID, WOL | ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, Node Manager Support, SDDC, UID, WOL | ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, Node Manager Support, SDDC, UID, WOL | ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, Node Manager Support, SDDC, UID, WOL

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* Please check Tested Memory List on Supermicro website for compatibility.
### Motherboard Solutions

#### Model Comparison

<table>
<thead>
<tr>
<th>Model</th>
<th>X11DPI-N</th>
<th>X11DPH-i</th>
<th>X11DPH-Tq</th>
<th>X11DPL-i</th>
<th>X11DPI-(T)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Xeon® Scalable Processors, Dual Socket P (LGA 3647) supported, CPU TDP support 205W, 2, UPI up to 10.4 GT/s, CPU1: Skylake-F CPU supported</td>
<td>Intel® Xeon® Scalable Processors, Dual Socket P (LGA 3647) supported, CPU TDP support 205W, 3, UPI up to 10.4 GT/s</td>
<td>Intel® Xeon® Processor Scalable Family, Dual Socket P (LGA 3647) supported, CPU TDP support Up to 140W, 2, UPI up to 10.4 GT/s</td>
<td>Intel® Xeon® Scalable Processors, Dual Socket P (LGA 3647) supported, CPU TDP support 205W, 2, UPI up to 10.4 GT/s, CPU1: Skylake-F CPU supported</td>
<td>Intel® Xeon® Scalable Processors, Dual Socket P (LGA 3647) supported, CPU TDP support 205W, 2, UPI up to 10.4 GT/s, CPU1: Skylake-F CPU supported</td>
</tr>
<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>Intel® C621</td>
<td>Intel® C622</td>
<td>Intel® C624</td>
<td>Intel® C628</td>
<td>Intel® C621</td>
</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>E-ATX, 12&quot; x 13&quot; (30.48cm x 33.02cm)</td>
<td>DDR4-2666MHz Up to, 2TB 3DS ECC LRDIMM, DDR4-2666MHz, in 16 DIMM slots</td>
<td>DDR4-2666MHz Up to, 2TB 3DS ECC LRDIMM, DDR4-2666MHz, in 16 DIMM slots</td>
<td>ATX, 12.076&quot; x 10.15&quot; (30.67cm x 25.78cm)</td>
<td>DDR4-2666MHz Up to, 2TB 3DS ECC LRDIMM, DDR4-2666MHz, in 16 DIMM slots</td>
</tr>
<tr>
<td><strong>Memory Capacity &amp; Slots</strong></td>
<td>Up to 2666MHz DIMM, DDR4-2666MHz Up to, 2TB 3DS ECC LRDIMM, DDR4-2666MHz, in 16 DIMM slots</td>
<td>DDR4-2666MHz Up to, 2TB 3DS ECC LRDIMM, DDR4-2666MHz, in 16 DIMM slots</td>
<td>DDR4-2666MHz Up to, 2TB 3DS ECC LRDIMM, DDR4-2666MHz, in 16 DIMM slots</td>
<td>Up to 2TB 3DS ECC LRDIMM, DDR4-2666MHz Up to, 2TB 3DS ECC LRDIMM, DDR4-2666MHz, in 16 DIMM slots</td>
<td>Up to 2TB 3DS ECC LRDIMM, DDR4-2666MHz Up to, 2TB 3DS ECC LRDIMM, DDR4-2666MHz, in 16 DIMM slots</td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>4 PCI-E 3.0 x16, 2 PCI-E 3.0 x8, M.2 Interface: PCI-E 3.0 x4 and PCI-E 3.0 x4, M.2 Form Factor: 2260, 2280, 22110, 2 PCI-E 3.0 x16, M.2 Form Factor: 22110</td>
<td>4 PCI-E 3.0 x16, M.2 Form Factor: 22110</td>
<td>4 PCI-E 3.0 x16, M.2 Form Factor: 22110</td>
<td>4 PCI-E 3.0 x16, 2 PCI-E 3.0 x8, M.2 Interface: PCI-E 3.0 x4, M.2 Form Factor: 2260, 2280, 22110</td>
<td>4 PCI-E 3.0 x16, 2 PCI-E 3.0 x8, M.2 Interface: PCI-E 3.0 x4, M.2 Form Factor: 2260, 2280, 22110</td>
</tr>
<tr>
<td><strong>Onboard RAID Controller</strong></td>
<td>Intel® C621 controller for 14 SATA3 (6 Gbps) ports: RAID 0,1,5,10</td>
<td>Intel® C624 controller for 10 SATA3 (6 Gbps) ports: RAID 0,1,5,10</td>
<td>Intel® C628 controller for 10 SATA3 (6 Gbps) ports: RAID 0,1,5,10</td>
<td>Intel® C621 controller for 10 SATA3 (6 Gbps) ports: RAID 0,1,5,10</td>
<td>Intel® C621 controller for 10 SATA3 (6 Gbps) ports: RAID 0,1,5,10</td>
</tr>
<tr>
<td><strong>Onboard LAN</strong></td>
<td>Intel® Dual LAN with GBE from C621</td>
<td>Intel® Dual LAN with GBE from Marvell® 88E1512</td>
<td>Dual LAN with Lewisburg Marvell 88E1512 PHY</td>
<td>Dual LAN with GBE from Intel® X722 + X557</td>
<td>Dual LAN with GBE from Intel® X722 + X557</td>
</tr>
<tr>
<td><strong>Onboard VGA/Display Ports</strong></td>
<td>1 VGA port(s), 1 Aspeed AST2500 BMC</td>
<td>1 VGA port(s), 1 Aspeed AST2500 BMC</td>
<td>1 VGA port(s), 1 Aspeed AST2500 BMC</td>
<td>1 VGA port(s), 1 Aspeed AST2500 BMC</td>
<td>1 VGA port(s), 1 Aspeed AST2500 BMC</td>
</tr>
<tr>
<td><strong>USB Ports</strong></td>
<td>2 USB 2.0 ports (2 rear), 5 USB 3.0 ports (2 rear + 2 headers + 1 Type A)</td>
<td>7 USB 3.0 ports (4 rear + 2 headers + 1 Type A)</td>
<td>4 USB 2.0 ports (2 rear + 2 headers), 3 USB 3.0 ports (2 headers + 1 Type A)</td>
<td>2 USB 2.0 ports (2 rear), 5 USB 3.0 ports (2 rear + 2 headers + 1 Type A)</td>
<td>2 USB 2.0 ports (2 rear), 5 USB 3.0 ports (2 rear + 2 headers + 1 Type A)</td>
</tr>
<tr>
<td><strong>Other Onboard I/O Devices</strong></td>
<td>2 ports SuperDOM, TPM 2.0 Header, 2 COM Ports (1 rear, 1 header)</td>
<td>2 ports SuperDOM, TPM 2.0 Header, 1 COM Port (1 header)</td>
<td>2 ports SuperDOM, TPM 2.0 Header, 1 COM Port (1 header)</td>
<td>2 ports SuperDOM, TPM 2.0 Header, 1 COM Port (1 header)</td>
<td>2 ports SuperDOM, TPM 2.0 Header, 1 COM Port (1 header)</td>
</tr>
<tr>
<td><strong>Manageability</strong></td>
<td>Intel® Node Manager, IPMI2.0, KVM with dedicated LAN, SPM, SSM, SUM, SuperDoctor®, 5, Watchdog</td>
<td>Intel® Node Manager, IPMI2.0, KVM with dedicated LAN, SPM, SSM, SUM, SuperDoctor®, 5, Watchdog</td>
<td>Intel® Node Manager, IPMI2.0, KVM with dedicated LAN, SPM, SSM, SUM, SuperDoctor®, 5, Watchdog</td>
<td>Intel® Node Manager, IPMI2.0, KVM with dedicated LAN, SPM, SSM, SUM, SuperDoctor®, 5, Watchdog</td>
<td>Intel® Node Manager, IPMI2.0, KVM with dedicated LAN, SPM, SSM, SUM, SuperDoctor®, 5, Watchdog</td>
</tr>
<tr>
<td><strong>Health Monitoring</strong></td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby, +1.8V, +12V, +3.3V, +5V, +5V standby</td>
</tr>
<tr>
<td><strong>Thermal Control</strong></td>
<td>8x 4-pin fan headers (up to 8 fans), PWM fan speed control</td>
<td>7 fans (up to 7 fans), fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control, Overheat LED indication, PWM fan speed control</td>
<td>8x 4-pin fan headers (up to 8 fans), Overheat LED indication, PWM fan speed control</td>
<td>8x 4-pin fan headers (up to 8 fans), Overheat LED indication, PWM fan speed control</td>
<td>8x 4-pin fan headers (up to 8 fans), Overheat LED indication, PWM fan speed control</td>
</tr>
<tr>
<td><strong>Other Features</strong></td>
<td>Chassis intrusion detection, CPU thermal trip support for processor protection, Node Manager Support, RoHS</td>
<td>ACPI power management, Chassis intrusion detection, CPU thermal trip support for processor protection, Node Manager Support, RoHS, UID</td>
<td>ACPI power management, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Node Manager Support, SDDC, UID, WOL</td>
<td>Chassis intrusion detection, CPU thermal trip support for processor protection, Node Manager Support, RoHS</td>
<td>Chassis intrusion detection, CPU thermal trip support for processor protection, Node Manager Support, RoHS</td>
</tr>
</tbody>
</table>
### Model Comparison

<table>
<thead>
<tr>
<th>MODEL</th>
<th>X11DAi-N</th>
<th>X11DPX-T</th>
<th>X11SPL-F</th>
<th>X11SPI-TF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Xeon® Scalable Processors, Double Socket P (LGA 3647) supported, CPU TDP support 205W, 2, UPI up to 10.4 GT/s</td>
<td>Intel® Xeon® Processor Scalable Family, Dual Socket P (LGA 3647) supported, CPU TDP support 205W, 3, UPI up to 10.4 GT/s</td>
<td>Intel® Xeon® Processor Scalable Family, Single Socket P (LGA 3647) supported, CPU TDP support 165W</td>
<td>Intel® Xeon® Processor Scalable Family, Single Socket P (LGA 3647) supported, CPU TDP support 205W</td>
</tr>
<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>Intel® C621</td>
<td>Intel® C621</td>
<td>ATX, 12” x 9.6” (30.48cm x 24.38cm)</td>
<td>Intel® C622</td>
</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>E-ATX, 12” x 13” (30.48cm x 33.53cm)</td>
<td>Proprietary, 15.12” x 13.2” (38.4cm x 33.53cm)</td>
<td>8x 288-pin DDR4 DIMM slots</td>
<td>ATX, 12” x 13” (30.48cm x 33.53cm)</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>Up to 2TB 3DS ECC RDIMM, DDR4-2666MHz, in 16 DIMM slots</td>
<td>Up to 2TB 3DS ECC RDIMM, DDR4-2666MHz, in 16 DIMM slots</td>
<td>Up to 2TB 3DS ECC RDIMM, DDR4-2666MHz, in 16 DIMM slots</td>
<td>Up to 256GB ECC RDIMM</td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>4 PCI-E 3.0 x16, 2 PCI-E 3.0 x8</td>
<td>2 PCI-E 3.0 x16, 8 PCI-E 3.0 x8, 1 PCI-E 3.0 x4 (in x8 slot)</td>
<td>2 PCI-E 3.0 x16, 8 PCI-E 3.0 x8, 1 PCI-E 3.0 x4 (in x8 slot)</td>
<td>1 PCI-E 3.0 x16, 1 PCI-E 3.0 x16 (x16 or x8), 1 PCI-E 3.0 x8 (x0 or x8), 1 PCI-E 3.0 x8</td>
</tr>
<tr>
<td><strong>Onboard RAID Controller</strong></td>
<td>Intel® C621 controller for 10 SATA3 (6 Gbps) ports, RAID 0,1,5,10</td>
<td>Intel® C621 controller for 10 SATA3 (6 Gbps) ports, RAID 0,1,5,10</td>
<td>Intel® C621 controller for 8 SATA3 (6 Gbps) ports, RAID 0,1,5,10</td>
<td>Intel® C622 controller for 10 SATA3 (6 Gbps) ports, RAID 0,1,5,10</td>
</tr>
<tr>
<td><strong>Onboard LAN</strong></td>
<td>Dual LAN with GbE from C621</td>
<td>Dual LAN with Intel® X550 10GbE Base-T Ethernet Controller</td>
<td>Dual LAN with Intel® X522 + X557</td>
<td>Dual LAN with 10GbE-T with Intel® X722 + X557</td>
</tr>
<tr>
<td><strong>Onboard VGA/Display Ports</strong></td>
<td>1 VGA port(s), 1 Aspeed AST2500 BMC</td>
<td>1 VGA D-Sub Connector port(s), 1 Aspeed AST2500 BMC</td>
<td>1 VGA port(s), 1 Aspeed AST2500 BMC</td>
<td>1 VGA port(s)</td>
</tr>
<tr>
<td><strong>USB Ports</strong></td>
<td>4 USB 3.0 ports (4 rear), 2 USB 3.1 ports (2 rear)</td>
<td>8 USB 3.0 ports (2 rear + 1 header), 5 USB 3.0 ports (2 rear + 2 headers + 1 Type A)</td>
<td>8 USB 2.0 ports (2 rear + 6 headers), 5 USB 3.0 ports (2 rear + 2 headers + 1 Type A)</td>
<td>6 USB 2.0 ports (2 rear + 4 headers), 5 USB 3.0 ports (2 rear + 2 headers + 1 Type A)</td>
</tr>
<tr>
<td><strong>Other Onboard I/O Devices</strong></td>
<td>2 ports SuperDOM, 7.1 HD Audio, TPM 2.0 Header, 1 COM Ports (1 header), Thunderbolt header for Thunderbolt 3.0 AOC support</td>
<td>2 ports SuperDOM, TPM 2.0 Header, 2 COM Ports (1 rear, 1 header)</td>
<td>Intel® Node Manager, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, KVM with dedicated LAN, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td>2 ports SuperDOM, TPM Header, 2 COM Ports (1 rear, 1 header)</td>
</tr>
<tr>
<td><strong>Manageability</strong></td>
<td>Intel® Node Manager, IPMI2.0, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Intel® Node Manager, IPMI2.0, KVM with dedicated LAN, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Intel® Node Manager, IPMI2.0, KVM with dedicated LAN, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Intel® Node Manager, IPMI2.0, KVM with dedicated LAN, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
</tr>
<tr>
<td><strong>Health Monitoring</strong></td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, 3.3V standby, 7-fan status, Chassis intrusion header, HT, Monitors CPU voltages, Supports system management utility, VBAT (90%)</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, 3.3V standby, 7-fan status, Chassis intrusion header, HT, Monitors CPU voltages, Supports system management utility, VBAT (90%)</td>
</tr>
<tr>
<td><strong>Thermal Control</strong></td>
<td>8x 4-pin fan headers (up to 8 fans), 8x fans with tachometer monitoring, Fan speed control, Overheat LED indication, Pulse Width Modulated (PWM) fan connectors</td>
<td>10x 4-pin fan headers (up to 10 fans)</td>
<td>7x 4-pin fan headers (up to 7 fans), Fan speed control, Overheat LED indication, PWM fan speed control, System level control</td>
<td>coolant, CPU thermal trip support for processor protection, Node Manager Support, RoHS</td>
</tr>
<tr>
<td><strong>Other Features</strong></td>
<td>Chassis intrusion detection, CPU thermal trip support for processor protection, Node Manager Support, RoHS</td>
<td></td>
<td></td>
<td>ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, UID, WOL</td>
</tr>
<tr>
<td>MODEL</td>
<td>X11SPH-nCTF</td>
<td>X11SPM-F</td>
<td>X11SPW-TF</td>
<td></td>
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<tr>
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<td>-------------</td>
<td></td>
</tr>
<tr>
<td>Chipset/System Bus</td>
<td>Intel® C622</td>
<td>Intel® C621</td>
<td>Intel® C622</td>
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</tr>
<tr>
<td>Form Factor</td>
<td>ATX, 12&quot; x 9.6&quot; (30.48cm x 24.38cm)</td>
<td>microATX, 9.6&quot; x 9.6&quot; (24.38cm x 24.38cm)</td>
<td>Proprietary WIO, 8&quot; x 13&quot; (20.32cm x 33.02cm)</td>
<td></td>
</tr>
<tr>
<td>Memory Capacity &amp; Slots</td>
<td>8x 288-pin DDR4 DIMM slots</td>
<td>6x 288-pin DDR4 DIMM slots</td>
<td>Up to 768GB ECC 3DS LRDIMM</td>
<td></td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>1 PCI-E 3.0 x16 (x16 or x8), 1 PCI-E 3.0 x8, 1 PCI-E 3.0 x4 (x8 slot)</td>
<td>2 PCI-E 3.0 x16, 1 PCI-E 3.0 x8</td>
<td>1 PCI-E 3.0 x8 (in x16 slot), 1 PCI-E 3.0 x32 Left Riser Slot</td>
<td></td>
</tr>
<tr>
<td>Onboard RAID Controller</td>
<td>Intel® C622 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10 Broadcom® 3008 SW controller for 4 SAS3 (12Gbs) ports; RAID 0,1,10</td>
<td>Intel® C621 controller for 12 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C622 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td></td>
</tr>
<tr>
<td>Onboard LAN</td>
<td>-nCTF: Dual LAN with 10GBase-T with Intel® X722 + X557 -nCTPF: Dual LAN with 10G SFP+ with Intel® X722 + Inphi CS4227</td>
<td>-F: Dual LAN with GbE with Marvell® 88E1512 -TF: Dual LAN with 10Gbase-T with Intel® X722 + X557 -TPF: Dual LAN with 10G SFP+ with Inphi CS4227</td>
<td>Dual LAN with 10GBase-T with Intel® X722 + X557</td>
<td></td>
</tr>
<tr>
<td>Onboard VGA/Display Ports</td>
<td>1 VGA port(s)</td>
<td>1 VGA port(s)</td>
<td>1 VGA port(s), 1 Aspeed AST2500 BMC</td>
<td></td>
</tr>
<tr>
<td>USB Ports</td>
<td>8 USB 2.0 ports (2 rear + 6 headers), 5 USB 3.0 ports (2 rear + 2 headers + 1 Type A)</td>
<td>6 USB 2.0 ports (2 rear + 4 headers), 5 USB 3.0 ports (2 rear + 2 headers + 1 Type A)</td>
<td>7 USB 2.0 ports (2 rear + 5 headers), 5 USB 3.0 ports (2 rear + 2 headers + 1 Type A)</td>
<td></td>
</tr>
<tr>
<td>Other Onboard I/O Devices</td>
<td>2 ports SuperDOM, TPM Header, 2 COM Ports (1 rear, 1 header),</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Manageability</td>
<td>Intel® Node Manager, IPMI2.0, KVM with dedicated LAN, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td>ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, UID, WOL</td>
<td>ACPI power management, Control of power-on for recovery from AC power loss, RoHS, UID, WOL</td>
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<td>Health Monitoring</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, 3.3V standby, 8 -fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, 3.3V standby, 7-fan status, Chassis intrusion header, HT, Monitors CPU voltages, Supports system management utility, VBAT</td>
<td>ACPI power management, Control of power-on for recovery from AC power loss, RoHS, UID, WOL</td>
<td></td>
</tr>
<tr>
<td>Thermal Control</td>
<td>8x 4-pin fan headers (up to 8 fans), Fan speed control, Overheat LED indication, PWM fan speed control, System level control</td>
<td>7x 4-pin fan headers (up to 7 fans), Fan speed control, Overheat LED indication, PWM fan speed control, System level control</td>
<td>ACPI power management, Control of power-on for recovery from AC power loss, RoHS, UID, WOL</td>
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<td>ACPI power management, Control of power-on for recovery from AC power loss, RoHS, UID, WOL</td>
<td></td>
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</tbody>
</table>
**Embedded Chassis Selection Guide**

**Fanless/IoT Gateway**
- Fanless & robust design
- Low power consumption
- Wide-range working temperature & voltage

**Compact Mini Tower**
- Support up to 80W TDP processor
- Hot-swap 3.5" HDD for RAID
- Low profile expansion slot for diversified application

**IPC**
- Rackmount with expansion capabilities
- Flexible Front I/O
- Up to 11 PCI-E Expansion slots

**Compact Dual Node System Trays**
- Rackmount kit available for Xeon-D and Denverton Systems
- Mounting kits for Single Node

**Compact Box System**
- Building block design
- Commercial off-the-shelf with extended product life cycle
- Easy deployment

**1U Rack System**
- 1U Rackmount with advanced cooling design
- Flexible I/O at front and rear
- Remote Management & FW upgrade via IPMI 2.0

---

### Front Bezel/LCD

<table>
<thead>
<tr>
<th>Model</th>
<th>MCP-220-00095-0B</th>
<th>MCP-220-00095-0B</th>
<th>MCP-210-00007-01</th>
<th>SCPTFB-813LB</th>
<th>MCP-210-82502-0B</th>
<th>MCP-210-84201-0B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature</td>
<td>LCD display kits</td>
<td>Full-color OLED kit</td>
<td>Front bezel with LCD display</td>
<td>Front bezel with lock</td>
<td>Front bezel with lock</td>
<td>Front bezel with lock</td>
</tr>
<tr>
<td>Form Factor/Chassis</td>
<td>5.25&quot; bay</td>
<td>3.5&quot;HDD bay</td>
<td>SC813/813M series</td>
<td>SC813/813M series</td>
<td>SC825M series</td>
<td>SC842 series</td>
</tr>
</tbody>
</table>

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### Chassis

<table>
<thead>
<tr>
<th>Model</th>
<th>SCE102</th>
<th>SCE300-LED</th>
<th>SCE300</th>
<th>SC101F</th>
<th>SC101S</th>
<th>SC101i</th>
<th>SC101iF</th>
<th>SC721TQ-250B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form Factor</td>
<td>3.5&quot; SBC/Pico-ITX Box PC</td>
<td>1U Server Box</td>
<td>1U Server Box</td>
<td>1U Server Box</td>
<td>1U Mini ITX Box PC</td>
<td>Mini ITX Box PC</td>
<td>Mini ITX Box PC</td>
<td>Mini Tower</td>
</tr>
<tr>
<td>Compatible Motherboard</td>
<td>3.5&quot; SBC, PICO-ITX</td>
<td>Flex-ATX 9.0&quot; x 7.25&quot;, Mini-ITX</td>
<td>Flex-ATX 9.0&quot; x 7.25&quot;, Mini-ITX</td>
<td>Mini-ITX</td>
<td>Mini-ITX</td>
<td>Mini-ITX</td>
<td>Single processor</td>
<td></td>
</tr>
<tr>
<td>Drive Bays</td>
<td>1x 2.5&quot; fixed drive bay</td>
<td>1x fixed 2.5&quot; SATA</td>
<td>1x 2.5&quot; fixed drive bay</td>
<td>1x 2.5&quot; fixed drive bay</td>
<td>1x Fixed 2.5&quot; SATA</td>
<td>1x Fixed 2.5&quot; SATA</td>
<td>1x Fixed 2.5&quot; SATA</td>
<td>4x 3.5&quot; Hot-Swap SATA HDD 2x internal 2.5&quot; SATA HDD</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>Onboard Mini PCI-E or M.2</td>
<td>1x low profile, half length</td>
<td>1x low profile, half length</td>
<td>Onboard Mini PCI-E or M.2</td>
<td>Onboard Mini PCI-E or M.2</td>
<td>Onboard Mini PCI-E or M.2</td>
<td>Onboard Mini PCI-E or M.2</td>
<td>1x low profile, half-length</td>
</tr>
<tr>
<td>Power Supply</td>
<td>40W Power Adapter</td>
<td>60W/80W/120W/150W DC Power Adapter</td>
<td>60W/80W/120W/150W DC Power Adapter</td>
<td>60W Power Adapter</td>
<td>60W Power Adapter</td>
<td>60W Power Adapter</td>
<td>250W Flex ATX Multi-output Bronze Power Supply</td>
<td></td>
</tr>
<tr>
<td>Dimensions (WxDxH)</td>
<td>7.48&quot; x 1.72&quot; x 4.72&quot; 190 x 44 x 120mm</td>
<td>10&quot; x 8.9&quot; x 1.7&quot; 254 x 226 x 43mm</td>
<td>10&quot; x 8.9&quot; x 1.7&quot; 254 x 226 x 43mm</td>
<td>7.6&quot; x 8.9&quot; x 1.7&quot; 195 x 195 x 43mm</td>
<td>7.68&quot; x 7.68&quot; x 1.7&quot; 195 x 195 x 43mm</td>
<td>7.68&quot; x 7.68&quot; x 2.68&quot; 195 x 195 x 68mm</td>
<td>7.68&quot; x 7.68&quot; x 2.68&quot; 195 x 195 x 68mm</td>
<td>11&quot; x 8.27&quot; x 9.45&quot; 280 x 210 x 240mm</td>
</tr>
</tbody>
</table>

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**Optimized Chassis Solutions**

SUPERMICRO® Embedded Building Block Solutions - January 2019
## Optimized Chassis Solutions

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Form Factor</td>
<td>1U Rackmount</td>
<td>1U Rackmount</td>
<td>1U Rackmount</td>
<td>1U Rackmount</td>
<td>1U Rackmount</td>
</tr>
<tr>
<td>Compatible Motherboard</td>
<td>Flex ATX, Mini-ITX</td>
<td>Flex ATX, Mini-ITX</td>
<td>MicroATX</td>
<td>MicroATX</td>
<td>ATX, MicroATX</td>
</tr>
<tr>
<td>CPU Support</td>
<td>Single processor</td>
<td>Single processor</td>
<td>Single processor</td>
<td>Single processor</td>
<td>Single processor</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>2 x Fixed 3.5&quot; or 4 x Fixed 2.5&quot; SATA</td>
<td>2 x Fixed 3.5&quot; or 4 x Fixed 2.5&quot; SATA</td>
<td>2x hot-swap 2.5&quot;SATA</td>
<td>Up to 4x Fixed 2.5&quot; SATA*</td>
<td>1x Fixed 2.5&quot; or 3.5&quot; SATA</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>1x full-height, half-length</td>
<td>1x full-height, half-length</td>
<td>1x low profile, half-length</td>
<td>1x full-height, half-length**</td>
<td>1x full-height, half-length</td>
</tr>
<tr>
<td>Dimensions (WxDxH)</td>
<td>17.2&quot;x9.8&quot;x1.7&quot; 437 x 249 x 43 mm</td>
<td>17.2&quot;x9.8&quot;x1.7&quot; 437 x 249 x 43 mm</td>
<td>17.2&quot;x11.3&quot;x1.7&quot; 437 x 287 x 43 mm</td>
<td>17.2&quot;x9.8&quot;x1.7&quot; 437 x 249 x 43 mm</td>
<td>16.8&quot;x14&quot;x1.7&quot; 437 x 356 x 43 mm</td>
</tr>
</tbody>
</table>

* When AOC area not occupied
** When HDD area not occupied

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Form Factor</td>
<td>Mini 1U</td>
<td>1U Rackmount</td>
<td>Mini 1U</td>
<td>1U Rackmount</td>
<td>1U Rackmount</td>
<td>1U Rackmount</td>
</tr>
<tr>
<td>Compatible Motherboard</td>
<td>ATX, MicroATX</td>
<td>ATX, MicroATX</td>
<td>10&quot; x 12&quot; ATX</td>
<td>E-ATX, E-ATX, MicroATX/WIO</td>
<td>ATX, Micro ATX/WIO</td>
<td></td>
</tr>
<tr>
<td>CPU Support</td>
<td>Dual and single processors</td>
<td>Single processors</td>
<td>Dual and single processors</td>
<td>Dual and single processors</td>
<td>Single processors</td>
<td></td>
</tr>
<tr>
<td>Drive Bays</td>
<td>2x 2.5&quot; hot-swap drive bay, Optional 4x 2.5&quot; fixed with bracket</td>
<td>2x Fixed 2.5&quot; or 3.5&quot; SATA</td>
<td>2x 2.5&quot; hot-swap drive bay, Optional 4x 2.5&quot; fixed with bracket</td>
<td>2 x Fixed 2.5&quot; HDD</td>
<td>Up to 2x 2.5&quot; fixed with bracket + SAS or enterprise SATA HDD</td>
<td>2x Fixed 2.5&quot; HDD***</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>1x full-height, half-length</td>
<td>1x full-height, half-length</td>
<td>2 full-height &amp; half-length expansion slot(s) (Riser Card Required)</td>
<td>2 x full-height, 1 low profile 1 full height expansion slot</td>
<td>Up to 2x full-height</td>
<td>Up to 2x full-height</td>
</tr>
<tr>
<td>Power Supply</td>
<td>1U 350W Multi-output power supply Platinum level</td>
<td>350W High-efficiency Power Supply 80 PLUS® Gold Certified</td>
<td>1x 1U 350W Multi-output power supply Platinum level</td>
<td>400W (1+1) Redundant SuperCompact Gold-level power supply with PMBus and DC</td>
<td>500W High-efficiency Power Supply 80 PLUS® Platinum Certified</td>
<td>400W (1+1) Redundant SuperCompact Platinum-level power supply with PMBus and DC</td>
</tr>
<tr>
<td>Dimensions (WxDxH)</td>
<td>17.2&quot;x15&quot;x1.7&quot; 437 x 381 x 43 mm</td>
<td>17.2&quot;x15x1.7&quot; 437 x 381 x 43 mm</td>
<td>17.2&quot;x16.9&quot;x1.7&quot; 437 x 429 x 43 mm</td>
<td>17.2&quot;x16.9&quot;x1.7&quot; 437 x 429 x 43 mm</td>
<td>17.2&quot;x16.9&quot;x1.7&quot; 437 x 429 x 43 mm</td>
<td></td>
</tr>
</tbody>
</table>

*** Extra 2x 2.5" Fixed HDD with ATX MB or Extra 1x 3.5" or 2x2.5 Fixed HDD with WIO and Half Length Add on Card.

<table>
<thead>
<tr>
<th>Model</th>
<th>SC825MTQ-R700LPB</th>
<th>SC835BTQ-R1K28</th>
<th>SC842XTQ-R606B</th>
<th>SC213XAC-R1K05</th>
<th>SC825XTQC-R1K05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form Factor</td>
<td>2U Rackmount</td>
<td>3U Rackmount</td>
<td>2U Rackmount</td>
<td>2U Rackmount</td>
<td>2U Rackmount</td>
</tr>
<tr>
<td>Compatible Motherboard</td>
<td>E-ATX, ATX, MicroATX</td>
<td>E-ATX, ATX, MicroATX</td>
<td>E-ATX, ATX, MicroATX ; max. motherboard size 15.2&quot; x 13.2</td>
<td>E-ATX, ATX, MicroATX</td>
<td>E-ATX 12.3&quot;x13&quot;</td>
</tr>
<tr>
<td>CPU Support</td>
<td>Dual and single processors</td>
<td>Dual and single processors</td>
<td>Dual and single processors</td>
<td>Dual and single processors</td>
<td>Dual and single processors</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>3x 3.5&quot; Hot-swap SAS / SATA</td>
<td>8x Hot-swap 3.5&quot; SAS / SATA</td>
<td>5x Hot-swap 3.5&quot; SAS / SATA</td>
<td>16x 2.5&quot; hot-swap SAS/SATA drive bay</td>
<td>8x 3.5&quot; hot-swap SAS/SATA drive bay with SIGPID and 2x 3.5&quot; fixed drive bay</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>7 low-profile expansion slots</td>
<td>7x full-height, full-length</td>
<td>7x full-height, full-length and 4x full-height, half-length</td>
<td>11 low-profile expansion slot(s)</td>
<td>7 low-profile expansion slot(s)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>700W Redundant High-Efficiency Power Supply</td>
<td>1280W Redundant Platinum Level Power Supply</td>
<td>600W Redundant High-Efficiency Power Supply 80 PLUS® Platinum Certified</td>
<td>2x 1U 800/1000W Redundant Power Supply 38mm Width</td>
<td>2x 1U 740W Redundant Platinum Power Supply W/PMBus</td>
</tr>
<tr>
<td>Dimensions (WxDxH)</td>
<td>17.2&quot;x17.7&quot;x3.5&quot; 437x 450 x 89 mm</td>
<td>17.2&quot;x20.5&quot;x7&quot; 437 x 521 x 178mm</td>
<td>17.2&quot;x20.5&quot;x7&quot; 437 x 521 x 178mm</td>
<td>17.2&quot;x25.6&quot;x3.5&quot; 437 x 650 x 89mm</td>
<td>17.2&quot;x25.5&quot;x3.5&quot; 437 x 647 x 89mm</td>
</tr>
</tbody>
</table>
Virtual Edge Networking Solutions

Embedded/IPC
Compute

IoT Gateway
& Edge

Fan-less &
Wireless

Edge

Cloud

Devices

IoT
Gateway

On-Premises
Server

Network
Switches

Cloud
Infrastructure

Virtual Edge Networking Solutions

NFV Reference
Architectural
Framework

Virtualized Network Functions (VNFs)

VNF
VNF
VNF
VNF
VNF

NFV Infrastructure (NFVI)

Virtual
Compute

Virtual
Compute

Virtual
Compute

Virtualization Layer

Compute

Storage

Network

Hardware Resources

NFV Management and Orchestration

Software-Defined Network Hardware infrastructure Solutions

SD-WAN, NFV, VNF, uCPE, vCPE

SD-WAN: Software-Defined Wide Area Network and Customer Premise Equipment (CPE) (Virtual/Universal) technologies use a modular approach that can take advantage of open source software and commercial-of-the-shelf open hardware platforms. Network infrastructure developers can roll out vCPE and SD-WAN services using uCPE Hardware.

vCPE: Virtual CPE technology is used to allow proprietary hardware and software to be replaced with virtualized instantiations that may run at customer premises, central offices or co-location and in data centers.

uCPE: Universal CPE is essentially an open hardware platform that replaces the proprietary WAN appliances of today using the open hardware model. Companies can roll out general purpose appliance that can run VNF (open software) functions, replacing one or more proprietary boxes that play a role in traditional WANs.

VNF: Virtual Network Functions as used in this report primarily refer to the valued-added L4-7 services that can be layered on top of the SD-WAN once it is built.

NFV: Network function Virtualization provides the ability to optimize and speed up deployment of new network services, compared to SDN that offers a centralized view of the network.
Supermicro and 5G

Mobile Wireless Network

1G
14.4Kbps
Voice

2G
9.6-14.4Kbps
Data

3G
2Mbps
Email & Web

4G/LTE
< 1Gbps
Streaming & HD Video

5G
> 1Gbps
Virtual & Augmented Reality & AI


1G
Enhanced Mobile Bandwidth
Lower Latency, Higher Bandwidth and High Capacity

2G
Massive Machine To Machine (M2M) Communication
Sensors Everywhere, Low Power Communication, Better Battery Life

3G
Ultra Reliable Low Latency Communications
Mobility & Critical Communication

4G/LTE
Virtual & Augmented Reality & AI

5G
Smart Sensors in Every Industry

Augmented and Virtual Reality

Mobile Wireless Network

Cloud/Enterprise Data Center

Managing Massive Volumes of Data - Supermicro Storage Server

Real time DATA Analytics - Supermicro GPU/FPG Server

Branch Office Edge

Intelligent, Accelerated Edge - Supermicro Edge Computing Server

SSG-6019P-ACR12L
SSG-2029P-E1CR48H
SSG-6049P-E1CR36H
SSG-6049-E1CR45L

SYS-1029GQ-TRT
SYS-1019GP-TT
SYS-4029GP-TRT
SYS-7049GP-TRT

SYS-E300-9D-8CN8TP
SYS-5019D-FN8TP
SYS-5028D-TN4T

Supermicro and 5G

Enhanced Mobile Bandwidth
Lower Latency, Higher Bandwidth and High Capacity

Massive Machine To Machine (M2M) Communication
Sensors Everywhere, Low Power Communication, Better Battery Life

Ultra Reliable Low Latency Communications
Mobility & Critical Communication

Virtual & Augmented Reality & AI

Supermicro Storage Server

Supermicro GPU/FPG Server

Supermicro Edge Computing Server

Embedded Building Block Solutions - January 2019
Supermicro SD-WAN Hardware Solutions

Traditional WAN based on MPLS

<table>
<thead>
<tr>
<th>Branch Office</th>
<th>Head Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSL</td>
<td>DSL</td>
</tr>
<tr>
<td>Fiber</td>
<td>Fiber</td>
</tr>
<tr>
<td>LTE</td>
<td>LTE</td>
</tr>
</tbody>
</table>

Proprietary Carrier Hardware | Control | Data | Management Plane | Proprietary, Carrier Dependencies, Complex Deployment, Expensive

Software-Defined WAN (SD-WAN)

<table>
<thead>
<tr>
<th>Branch Office</th>
<th>Head Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSL</td>
<td>DSL</td>
</tr>
<tr>
<td>Fiber</td>
<td>Fiber</td>
</tr>
<tr>
<td>LTE</td>
<td>Public Internet</td>
</tr>
</tbody>
</table>

Industry Standard Hardware | Control | Data | Management Analytics | Open, Public Cloud, Easy Deployment, Cost Effective, Multiple (Virtual) Services

SD-WAN/uCPE Application on Intel Xeon D Process Platform

SD-WAN already used extensively for enterprise traffic management, next step is NFV migration of nodes, Opportunity to deploy Intel® Xeon® D processor based NFV platforms as branch nodes.

As an Intel® Select Solution for uCPE, SMCI’s platform has been verified to meet specific measurements for workload-optimized performance in both Xeon® D processor & Atom solution.

Intel Select Solution for uCPE validated by leading SD-WAN and Network Virtualization vendors

Supermicro SYS-5019D-FN8TP has been tested with Nuage Networks in Virtual Network Services (VNS). This selected model could make SD-WAN/uCPE deployment provides customer maximum flexibility, technology options and minimize time to market.
Supermicro Building Block Solutions for Embedded Applications, The Internet Of Things and The Intelligent Edge

Embedded Appliances
Connecting the Intelligent World from Devices to the Cloud

Intelligent Edge Servers
Expanding our Product Portfolio to address emerging Embedded/IoT Edge Market

Smart IoT Gateways
Offering a proven solution that delivers an application-ready platform

Cloud-managed Gateways: Secure, Scalable and Zero-Touch

The IoT is starting to become engrained in our everyday lives, as smart devices become commonplace, and soon it will be hard to imagine life before it. IoT gateways and industrial PCs are being deployed in masse, in order to bring compute power closer to the data. Beyond the staggering scale of growth, managing these devices results in a myriad of challenges for customers. Devices are spread across the field, often in locations that are difficult to secure and hard to reach. The scale and complexity of the edge ecosystem means that many of the traditional processes for deploying and maintaining devices are not sufficient. Instead, customers need a solution that addresses complexities such as manage devices widely distributed, secure devices in a perimeter-less world and process data at remote locations even with unreliable connectivity and high latency.

With Supermicro cloud-managed gateways along with ZEDEDA management software, customers can streamline and simplify the management of edge hardware across the landscape. Our high-powered, rugged devices enable the customers to move processing power out of the datacenter and closer to their edge. New devices arrive out-of-the-box with pre-installed management software, allowing IT to remotely manage all initial and ongoing hardware orchestration.

Benefits of choosing Supermicro solutions:
• Central visibility and management over all edge hardware
• Hardware integrity and security ensured with zero-trust model
• Zero-touch device provisioning
• Configure and manage applications at scale
• Agility and scalability with 100% cloud-based model

Microsoft Azure IoT Certified Systems
SYS-E50-9AP
SYS-E50-9AP-WIFI
SYS-E100-9AP
SYS-E100-9APP
SYS-E100-9AP-IA
SYS-E100-9S
SYS-E100-9S-L
SYS-E100-9S-E
SYS-E102-9AP-L
SYS-E300-8D
SYS-E200-8D
SYS-E200-9B
SYS-S018A-TN4
SYS-S018D-LN4T
SYS-S018D-FN4T
Addressing Market needs with Products and Technology

**Medical Imaging Scanners**
Medical imaging is the ability to create visual representation of the interior organs and functions of the human body for clinical analysis. High performance image processing is critical for medical scanners and instrumentation such as CT, MRI, PET, OCT & Ultrasound.

**Industrial Automation**
Modern factories use several forms of control systems for operating mechanical sensors, switches, relays, conveyors, hydraulics, pneumatics and electrical devices. General purpose process control servers and IoT Gateways are increasingly being deployed to run industrial and business application software to help improve operations, simplify device management, and reduce maintenance costs.

**Communication Infrastructure**
Network security servers monitor and control incoming and outgoing network traffic based on predetermined security rules. Intel QAT provides cryptography engines for faster encryption and decryption of messages or information for authorized and intended use.
Software Defined Network (SDN), Network Functions Virtualization (NFV) (also known as Virtual Network Function (VNF)) offers new ways to design, deploy and manage data communication and networking services.

**Smart Cities**
Smart Cities are a vision of new urban development that integrate multiple city resources and services using information technology and Internet of Things (IoT) solutions. The goal is to build a highly efficient system that integrates all local services such as public transportation, schools, libraries, malls, utilities, law enforcement, hospitals, and other community services. Information and communication technology (ICT) is used to enhance community resources and services, improve response time, provide better and more efficient utilization of resources, reduce cost, and improve communication between citizens and government.

**Intelligent Transportation**
Transport control systems provide innovative and advanced applications and services relating to different modes of transport and traffic management. These systems enable both transport authorities and commuters to be better informed, and make smarter and coordinated use of various public transport systems.

**Digital Signage**
Digital signage provides projection and display technologies such as digital images, video, streaming media, etc. found in public arenas such as stadiums, museums, hotels and restaurants, corporate buildings, airports, train and bus stations for marketing, advertising or informational purposes. Sophisticated and advanced solutions provide streaming video or multimedia content over high-speed connection services including remote management, large multiple-displays and highly interactive displays in public places for informational or advertising purposes.

**Retail Kiosk, Point-of Sale, Banking ATM**
Retail Kiosk, Point-of Sale, and Banking ATM are interactive computer terminals that feature embedded low-power, small form factor hardware and software that is self-contained within the machine. They provide access to information and applications for commerce, retail transaction, entertainment, information and education.

**Digital Security & Surveillance**
Advanced video surveillance systems are used for monitoring and observing an area. These systems include Analog or Digital cameras and are often connected to recording and Storage Devices over IP networks.
Video Surveillance as a Service refers to hosted cloud-based video surveillance. The service typically includes video recording, storage, remote viewing, management alerts, cyber security and more. Cloud technology advances and greater bandwidth availability are making VSSaaS — also called cloud video surveillance — increasingly attractive.

**Cloud, Warm and Cold Storage**
Cloud data storage is a service model in which information is remotely stored, managed, maintained and made accessible to users over the internet. Warm and cold data is data that is accessed less frequently and is usually stored on lower performing and less expensive storage environments either on premises or in the cloud.

**Electronic Test Equipment**
Test equipment is used to generate signals and capture responses from semiconductor devices and electrical circuits, with the ability to diagnose faults and/or guarantee the proper operation of the electronic devices. Electronic test equipment ranges from the very simple to extremely complex and sophisticated instrumentation that are used during semiconductor manufacturing, inspection, test and debug.
Embedded Motherboards

Supermicro offers a full range of standard form factor motherboards that include Mini-ITX, Micro-ATX, ATX, and E-ATX. These long life cycle motherboards support single and dual Intel® processors delivering the latest technology and the best performance. The proprietary form factor motherboard provides 11-slots with PCI-E 3.0 for extreme expansion.

SuperServer®

Supermicro combines 20+ years of advanced engineering experience with efficient production and integration expertise. Supermicro offers first-to-market Embedded computing SuperServer systems that are fully configured and provide one-stop solutions from design support to worldwide service.

IPC Rackmount Chassis

Supermicro offers a full range of short depth 1U to 4U Rackmount chassis in various configuration and expansion capabilities. These chassis are designed to support embedded motherboards, such as Mini-ITX, Micro-ATX, ATX, and E-ATX and proprietary form factors. Features include high-efficiency power supplies, redundant power supplies, hot-swap accessories, storage and cooling options.

Supermicro Ethernet Switch

The SSE-G2252 switches offer a full range of popular Ethernet features like Jumbo Frames, Link Aggregation, VLANs, Energy Efficient Ethernet, and a Power over Ethernet option. All of this is done in a compact 1U form factor for maximum flexibility in rack-mount installation.

Supermicro mSATA

Based on the JEDEC mini-mSATA (MO300B Variation B) form factor, this Supermicro storage device is engineered to deliver big performance in a small package. With built-in Wear-Leveling and ECC to ensure reliability of data transfers over time, this compact device is the perfect solution for holding the essential boot files of the operating system and the most used applications. Besides the Supermicro mini-mSATA’s compact size, you also have the speed of SATA3 (Up to 530MB/s Read and 185MB/s Write) and backward compatibility with previous SATA generations. The Supermicro mini-mSATA is currently available in 64GB capacity and supports all Supermicro SuperServer® products and solutions.

Supermicro Trusted Platform Module (TPM)

The Supermicro AOM-TPM9655V/H is a security hardware device on the system board that will hold computer generated keys for encryption. Supermicro’s outstanding hardware base solution ensures that the information such as keys, passwords and digital certificates stored within are made more secure from external software attacks and physical theft. With the handful of keys it stores, all cryptographic functions are performed on the chip. AOM-TPM9655V/H is an ideal tool for customers who are looking for an additional layer of security to their SuperServers.

LCD Screen Module

The Supermicro LCD screen module features green LCD display screen. The module displays two backlit lines of data with 16 characters per line, and includes 6 front access keys (4-way direction keys and Enter/Cancel buttons), and USB interface with pin header to support up to 100cm of cable connected to a communications terminal.

Accessories

Supermicro offers a wide variety of tested and certified easy-to-use accessories that are optimized for our server solutions. Standard accessory offerings includes networking and storage Add-on cards, OLED and LCD system status display kits, AC and DC high-efficiency power supply, battery backup power modules and Hot-swap Mobile Racks.

Supermicro SATA DOM

Designed to be conveniently inserted into a server board SATA connector, this Supermicro SATA DOM (Disk on Module) is a small SATA3 (6Gb/s) flash memory module that provides high-performance solid-state-storage capacity that simulates a hard disk drive (HDD). Supermicro SATA DOMs are extremely reliable as they do not use any moving parts like the standard HDDs and are smaller and lighter with greatly improved performance, latency and power consumption.

With its optimized design, the Supermicro SATA DOM does not require a 5V power cable as do other SATA DOM products on the market. The Supermicro SATA DOM is available in 16GB, 32GB, 64GB, and 128GB capacities and supports all Supermicro SuperServer® products and solutions.

M.2 (Next Generation Form Factor, NGFF)

M.2 is a specification for internally mounted computer expansion cards and associated connectors. M.2’s more flexible physical specification allows different module widths and lengths, and is paired with the availability of more advanced interfacing features such as PCI-E and NVMe protocols. Computer bus interfaces provided through the M.2 connector are PCI Express 3.0 (up to four lanes), and Serial ATA 3.0. The Supermicro M.2-NVMe-SSD is “M-Keyed” and is available in the (2280 & 22110) size form factor incorporating the PCI-E 3.0 interface and the high performance NVMe protocol. Architected for high performance, low power and high reliability in the smallest M.2 form factor footprint.

Enterprise SSD – U.2 Form Factor

U.2 (SFF-8639) form factor leverages both PCI-E 3.0 x4 bus interface and 2.5” SATA/SAS mechanical dimensions.

NVMe devices are available in both standard-sized PCI-E and as 2.5-inch form-factor devices that provide a four-lane PCI Express interface through the U.2 connector.

U.2 provides both ultra-high speed SSD performance and higher capacity SSD, while providing compatibility with standard SAS/SATA Drives that can be used in the same tray.

NVMe SSD Interface

NVMe Express, NVMe, or Non-Volatile Memory Host Controller Interface Specification (NVMeHCI), is a specification for accessing solid-state drives (SSDs) attached through the PCI Express (PCI-E) bus.

Riser Cards

A riser card plugs into the motherboard and provides additional slots for adapter cards (AOC). AOC are oriented parallel to the motherboard and saves space within the system enclosure.

OEM Design-in Services

Supermicro is a technology provider of embedded building blocks. We are the first to Market in embedded solutions for critical OEM applications and we provide a wide choice of off-the-shelf embedded building blocks - along with long product lifecycle, open standards, designed to high quality with world class support.

Supermicro adheres to rigorous design implementation, manufacturing standards and ISO standards to ensure that our products are produced with the highest quality and reliability.

ISO Certificates: ISO9001 / ISO14001 / ISO13485
About Supermicro

Supermicro Computer, Inc. or Supermicro® (NASDAQ: SMCI), a global leader in high-performance, high-efficiency server technology and innovation, is a premier provider of end-to-end green computing solutions for Enterprise IT, Data Center, Cloud Computing, Big Data, HPC and Embedded Systems worldwide. Founded in 1993 and headquartered in San Jose, California, Supermicro has been profitable every year since inception and has annual sales over $2 billion. Products are sold through major distribution channels including VARs, SIs and OEMs worldwide, as well as through its direct sales force. Operations centers are located in Silicon Valley, the Netherlands, with a new 1 million+ square foot Science & Technology Park and advanced integration facility in Taiwan, and Green Computing Park in San Jose.

About Supermicro Embedded/IoT Solutions

Supermicro provides innovative and first-to-market technologies that are the building blocks for today’s embedded computing platforms. Rapid growth in the embedded markets and open standards are driving the need for higher levels of product integration and optimization through network connectivity, remote management, mobile communication, expanded I/O, and device-to-device communications using space and power efficient configurations. We offer the widest choice of off-the-shelf building blocks to meet customer needs that are optimized to specific applications. Supermicro’s high-performance embedded motherboards offer the most extensive selection in the industry, utilizing Intel® processors and chipsets that meet our customer’s needs.

About Supermicro Global Services

As a leading provider of Building Block Solutions® for Data Centers, Supermicro is the premier choice for your professional support services- offering global coverage and highly efficient, on-time responsiveness to meet your hardware maintenance challenges. Supermicro’s goals are to help you improve your service levels, reduce operating expenses through efficiency, while extending your overall infrastructure value through maximum uptime. With Supermicro Global Services, you can count on results through these areas below:

- Flexible and customizable service level agreements (SLA)
- Highly efficient support systems and processes.
- Direct access to Level III services staff, field service engineers, and support operation management.
- Live, domestic call center responses, not an automated voice system
- Single point of contact for support in a complex environment

Supermicro’s focus is to ensure that you protect your hardware investment by maintaining a high level of uptime. We promise each customer professional levels of responsiveness, accountability, collaboration and quality.
Supermicro focuses on application optimization, product quality, availability, world wide support and total customer satisfaction. We are a leading innovator in high-performance, high-efficiency server technology and a premier provider of end-to-end server solutions for Enterprise IT, HPC, Big Data and Cloud Computing worldwide. Our server technology proficiency, highly reliable design philosophy, long product life cycle and cost competitiveness, have all been integrated into our embedded products. With our extensive knowledge and expertise in high-end server design and manufacturing, Supermicro offers the embedded market the highest quality products and solutions that meet even the most challenging embedded design needs.